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Foundations of Pyschiatry

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WITH AN INTRODUCTION BY

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INTRODUCTION

Many of the perplexing problems in the World today are the results of attempts to regulate society on the basis of what man is supposed to be.

Practically very little is actually known about man as he is, yet laws are drafted and adopted, and proposals to regulate international relations and to direct the course of civilization are made, based upon the old purely imaginative conceptions of the forces shaping human character.

Ideals of social progress and hopes for international peace can only be changed from visions of wishful thinkers into plans capable of being realized by modifying cherished ideals to meet the actual biological needs of mankind.

In this volume, for which I have been privileged to write an introduction, the author, Dr. White, has pointed out what information is available for preparing the foundations of a science of human character. He has emphasized the driving power of the instinctive life, traced the genesis of impulses, and has pointed out some of the prejudices and fixed ideas that are responsible for so much of the chaos in the World. This presentation should be useful not only to physicians interested in trying to check the spread of nervous and mental diseases, that have become one of the greatest menaces to civilization, but to all the great army of earnest people now engaged in efforts to promote peace and to reorganize society.

STEWART PATON.

PREFACE

The present century has witnessed an advance in the field of psychiatry which is unprecedented and has resulted in no less than a complete revolution in our ways of thinking of mental disease. From the period, out of which we are only now passing, when all mental disease was thought of as insanity and all nervous disease as hysteria or perhaps neurasthenia, to the present with its elaborate description and interpretation of mental mechanisms and personality make-up, a tremendous step forward has been taken in the understanding of the human individual of momentous importance, not only to psychiatry but to the practice of medicine in general as well as to all those related sciences that are occupied with an understanding of man.

In my previous works[1] I have endeavored to cover the descriptive aspects of psychiatry, to outline and interpret the more important of the mental mechanisms and to give the application of the facts and principles of the new psychology to certain fields of endeavor, specifically psychotherapeutics and mental hygiene. Such a series of works constitute an effort to develop a *System of Psychiatry* which describes the various mental illnesses, traces their causes in the underlying mental mechanisms, outlines their

[1] Outlines of Psychiatry: Published by the Nervous and Mental Disease Publishing Company, Washington, D. C., 1920. (8th ed.)

Diseases of the Nervous System: Written with Dr. S. E. Jelliffe. Published by Lea & Febiger, Philadelphia, 1920. (3d ed.)

Mental Mechanisms: Published by the Nervous and Mental Disease Publishing Company, Washington, D. C.

Modern Treatment of Nervous and Mental Diseases: Edited with Dr. S. E. Jelliffe. Published by Lea & Febiger, Philadelphia, 1913.

Mechanisms of Character Formation: Published by the Macmillan Company, New York, 1916.

The Principles of Mental Hygiene: Published by the Macmillan Co., New York, 1917.

The Mental Hygiene of Childhood: Published by Little, Brown and Company, Boston, 1919.

Thoughts of a Psychiatrist on the War and After: Published by Paul B. Hoeber, New York, 1919.

treatment and the principles involved in their prevention, and gives the application of the principles to various related problems, not only of individual man but of man as a social animal.

In this work I shall endeavor to set forth these same principles from a wider viewpoint, gathering them together and discussing their biological, psycho-biological, and sociological foundations and ramifications in a general philosophy of the foundation principles which underlie an adequate approach to the problems of psychiatry. This is no less than an effort to formulate a *Philosophy of Psychiatry*.

I have undertaken this broad philosophical approach to psychiatry because of my conviction that only by an illumination of the foundations of the principles of psychiatry can a full understanding of them be had and only when that is accomplished will much wrong thinking about them be in the way of correction.

This method of procedure is inevitable. In any new department of thought it is natural that its early stages should be characterized by an attempt to describe the various phenomena which are conceived rightly to come within its proper domain, later attempts are made to interpret these phenomena, and lastly, on the basis of these descriptions and interpretations an effort is made to correlate the findings with the general principles of science which have been worked out in other fields. This latter effort, namely, to correlate the facts of a given field of inquiry with the principles worked out in other fields which touch it more or less directly, is the proper function of philosophy and is the field which this book attempts to present. This is an ambitious task and I can only hope to succeed in pointing the way which others may follow. Because of the rapid advance in the field of psychiatry in recent years and the realization of its value for an understanding of many problems which until recently were never conceived to come within its sphere, I believe that a philosophy of psychiatry may be of great value at the present time.

During the period of the world war the several groups of psychoanalysts in different countries were separated one from another. Verbal, written and printed communications were closed or rendered extremely difficult. As a result each group developed along lines of its dominant trends less modified than usual by the other groups with varying tendencies. The war

period therefore served to accentuate the distinctive characteristics in the various quarters.

In the United States, where the growth of the psychoanalytic movement, and particularly the development of its relations to the broader study of psychopathology, has been more free, more progressive, and less doctrinal, certain fairly well defined trends have come into the foreground, which, while not exclusively characteristic, are still given much more emphasis here than elsewhere.

These characteristics are sufficiently marked so that it would seem proper to speak of an American School of Psychopathology as distinctive from the European groups.

In general, the features which the American School emphasize may be outlined as follows: (1) The unity of the organism as an energy system: (2) human behavior as a special problem of energy transformation and discharge; (3) structural organization as an instance of the phyletic synthesis of experience, with the nervous system as the chief agent in this organization: (4) the principle of action patterns of discharge as integral parts of the structural organization; (5) the conception that the symbol is a source and a carrier of energy; (6) the ambolition of the metaphysical distinction between mind and body; (7) the conception of the unconscious as a container of the phyletic history of the organization of the psyche in action pattern symbolization; (8) the importance of archaic symbols and their relationship to somatic as well as mental diseases; (9) the belief that organic disorders have their psychologic as well as their somatic symptomatology; (10) the belief that standards of conduct are an integral part of the action pattern symbolizations and therefore must be included in the understanding and management of all medical and social problems.

The most comprehensive expression of these tenets is to be found in Jelliffe and White's Diseases of the Nervous System. This little book, Foundations of Psychiatry, is an expression of the distinctive features of the American School and an examination into the foundation principles involved. Its function is, to use an expression of one of the members of my staff, to biologize psychiatry, in the sense, of course, that biology is inclusive of psychology, the humanities and the social sciences.

W. A. W.

CHAPTER I

Introduction

The study of psychiatry has long been separte from the other medical specialties. Mind has been a phenomenon treated as detached from consideration by the laws applicable in other departments of medicine. Like all scientific disciplines, however, it has been busily concerned with collecting its facts and grouping them in variously arranged classifications, the facts gradually increasing in number and complexity and the classifications following suite. In this process the conception of mental disease types has arisen and these so-called diseases have received an ever increasing accuracy of description followed by splitting up into sub-types in every way analogous to natural history methods of progress. Of late years, however, there has been a growing tendency to seek beyond the facts of mere description and this search has inevitably led to a progressively more dynamic approach to the problems of mental disease which has laid more and more emphasis upon the processes involved in the psychoses over and above the mere description of their phenomena as symptoms.

In the search for explanations, in the growth of an interpretative psychiatry, in the change from a static to a dynamic viewpoint, the false distinction between mind and body has gradually given way to a method of approach which no longer stresses this distinction but sees in the mind, the personality make-up, the final expression of the total integration of the individual into an organic unity, and realizes for the first time that psychological mechanisms are at least analogous to those mechanisms with which medicine has so long been familiar in its other departments.

The failure previously to arrive at such a standpoint as this has largely been the result of medical teaching. The medical student, under the instruction of different specialists, has been led to consider the human individual as composed of different organs, or systems of organs, which in each case he studied more or less exclusively and with little regard for the fact that they were in

every instance parts of a larger whole. This attitude of medicine towards the body is perfectly understandable and belongs to a certain stage of progress in the development of thought. The parts are first apprehended before their interrelations can become a matter for consideration. In psychiatry, however, the student is for the first time introduced to a consideration of the organism as a whole, to its total as contrasted to its partial reactions. This is not to say that internal medicine can not legitimately consider the organism as a whole, as a unity. It can and should but in psychiatry this matter of unity and wholeness is stressed for the first time. The question no longer is, What is the liver, or the kidney, or the stomach doing? but, What is the man doing?

This state of affairs can be simply illustrated by a social analogy. Suppose the bakers should get together for the purpose of standardizing the size and the price of a loaf of bread. If the necessary changes to this end were inconsiderable they would not attract attention, would even not be known about by the majority of the people. The changes would be, to all intents and purposes, local, confined to the group of bakers. Such a change is comparable to an inflammation with abscess formation of the arm, for instance, without any systemic symptoms and with a minimum of interference with the function of the arm. Now suppose, on the contrary, that the bakers should agree among themselves to materially raise the price of bread or decrease the size of the loaf, or that they should strike for higher wages and for a time at least stop production. Then it can be readily seen that their action would cease to have only local significance but on the contrary would become of great social importance. To return to the analogy of the abscess of the arm. If instead of remaining a strictly localized affair general infection were to result the patient would feel ill and would develop mental symptoms, for instance along with the feeling of illness he would be depressed and perhaps with the onset of fever he might become delirious. In other words, just so soon as the abscess produces a general infection just so soon does there appear a total, that is, a mental reaction; and just so soon as the action of the bakers ceases to be purely local does it tend to become general, that is, social.

For the most part the medical schools have laid emphasis in their teachings upon the partial reactions, the diseases of the

several organs. Psychiatry has only recently been recognized in the curricula of the medical colleges and it is the only medical specialty that deals primarily with total reactions although psychiatrists have by no means always recognized that fact having not infrequently wandered very far in their search for causes and explanations. Of course this is not to say that the internist may not also properly approach the problem of disease as it involves particular organs from the standpoint of the organism as a whole. This is not only legitimate, but a very valuable, nay a necessary angle of approach if the problems are going to be fully compassed from all sides and the internist more or less appreciates this and often tries to do it. But he has almost always failed for he has not taken the personality into consideration or if he has his consideration has been hopelessly inadequate. Now psychiatry, dealing essentially, as it does, with total reactions, that is reactions of the individual as a whole, which is only another way of saying mental states, is peculiarly in a position to rescue medicine, as it were, from its rather hopeless quest for adequate explanations in a consideration of anything short of the whole individual. The whole can never be explained by the parts, no search, no matter how painstaking will ever discover an idea in the section of brain tissue under the microscope. The great contribution which psychiatry has to make to medicine, therefore, is this emphasis upon the importance of total reactions, and, which is largely the same thing, its emphasis upon the importance of studying the phenomena of consciousness and realizing that the understanding of the individual can not be accomplished by an approach that is wholly from without, so to speak, that is, that takes no cognizance of the situation from within. Happiness is at least as important a goal as a urine of a certain specific gravity.

The study of consciousness, or better of mind, is too a study of the most important of all the functions as well as the most important tool which man brings to bear upon the interpretation of his problems and in effecting his various adjustments. It is certainly worth while to attempt to cultivate this instrument, to try to discover its limitations, weak points, and possibilities. A problem as important for the physician in dealing with his own mind as tool as in dealing with the mental adjustments of his patients. In the chapters which follow an attempt will be made to outline

the important mental mechanisms, to describe the fundamental laws which govern the processes of mind, in order to throw light upon its ways of working. Not all of the mechanisms will be examined but only those of fundamental importance a knowledge of which is necessary for the adequate approach to any mental problem, and those will be examined sufficiently to indicate that they are processes governed by laws which are not only operative in the field of the human psyche but are of universal significance as laws governing the distribution of energy whether in the fields of biology, psychology, or sociology.

Not only is it important in general for both psychiatry and general medicine to recognize and understand the nature of total reaction types of response, but it is of the greatest practical importance for the whole field of therapeutics, otherwise therapeutic agents, pharmacological, surgical, climatic, recreational or what not, are in constant and serious danger of being wrongly valued. The personality make-up cannot be safely kept out of consideration in any problem that effects the individual. It is obviously fundamental in psychiatry, it is less obviously but often equally fundamental in internal medicine, and it is often of the very first significance in therapeutics. Whole fields of therapeutic endeavor are constantly receiving their stimulus from successes almost if not quite wholly dependent upon their psychotherapeutic value yet the results are as constantly attributed to the agent employed, usually a drug or an operation. That such a serious distortion of what actually takes place is possible not only spells great danger for the patient, wastes energies on the part of the physician which could be employed to better advantage, but is evidence of a degree of loose thinking which is sorely in need of correction. From this point of view also, therefore, it is important to have more knowledge of the ways of working of the mind, not only as it may get out of order in the patient but as it may operate in the physician to distort the facts of observation and even his own motives. For all of these reasons mind needs to be studied in medicine, not in the superficial way of describing a few types of disorders by recounting their prominent symptoms in a course in psychiatry but seriously as of fundamental importance to the adequate understanding of the human individual, and as a phenomenon which, to be understood, needs to be studied from the standpoint of the broadest biological approach.

The conquering of the environment is made possible only by an increase in the knowledge of that environment which is, speaking in general, accomplished by a process of becoming conscious of the things which constitute the environment and of the laws that govern them. Great advances in knowledge are made possible, among other ways, by perfecting the instruments with which the environment is examined. In the course of evolution the perfecting of the sense organs has brought the higher animals into contact with aspects of the environment unknown to lower forms, while in the realm of science the perfecting of instruments for enlarging the power of perception has been a notable factor in bringing a constantly wider aspect of the environment within the realm of perception. The perfection of the microscope, the telescope, and the spectroscope are instances in point and this perfection of the instruments for increasing the field of perception has, among other things, been along the line of correcting those imperfections which produced erroneous results. The process of the elimination of defects has taken place at once in the realm of organic evolution, for example, the correction of the defect in vision produced by the blind spot of the retina, and in the fabricated instruments for enlarging the field of perception, as for instance, the correction of errors of chromatic aberation in the microscope. Now the human mind may profitably be considered as an instrument for contacting with the environment and it is equally important to look to its sources of possible error with a view to correcting them. This was early appreciated by the astronomers who found that a series of observations of the same phenomenon were not all alike. The human machine did not function with absolute accuracy so that an allowance had to be made for personal errors in correcting the observations—the so-called personal equation.

The new psychology has discovered the same sort of thing with reference to man's conduct, his beliefs, activities, observations and his estimates of his fellows, in fact, his whole field of relations to his personal and social environment. An individual's reaction in any particular situation is not alone determined by the factors of the situation itself but the sum total of his previous experience which relates him to it and for the most of which he is quite unconscious. In other words, every situation is ap-

proached with a certain personal bias, a prejudice, based upon what the particular nature of the previous experience may have been. For example, certain religious, political, social doctrines are subscribed to, professions, recreations, friends, are chosen, theories of living, philosophies are elaborated almost altogether because of tendencies which lie back of consciousness and which are only vaguely, if at all, in the field of awareness. In other words, problems of living are approached with a bias, a prejudice born of the unconscious, and lives express, among other things, the reactions to these unconscious urgings. It is a matter of common knowledge that often tendencies are at variance with the individual's as well as other's interests, but never before has there been an adequate appreciation of the nature of the problem of bringing these tendencies under control and direction much less a technique for doing so. This is precisely what the new psychology essays and because of the tremendous importance to mankind of the problems it attacks, its suggested solutions must be given an adequate hearing.

The new psychology, therefore, has to do with a refinement of this instrument of the mind, so that it will work better in its function of relating the human machine to its environment. To that end it is essential to know it through and through for what it really is, rather than take it at its face value. Just because a man says so and so, even though the man be as a matter of fact truthful, is no reason why his statement should be accepted. A man says that he really does not care for alcohol, that he only takes it as a matter of sociability and he may think he is telling the truth but if he is seen year after year becoming a confirmed alcoholic it is realized that it is not so. In truth "actions speak louder than words."

Such a man, however, may easily have fooled others into an acceptance of his statement, but more important still is the fact that he succeeded also in fooling himself. For after all the essence of psychology is self-knowledge, for one must first be honest with oneself if one is to succeed with others. "To thine own self be true, . . . thou canst not then be false to any man."

Instincts are bound to get expression in some way, sooner or later, and if an understanding of their promptings is not possible then they gain expression by some devious pathway and parade

as something which they are not. An instinctively cruel person might be attracted to work requiring animal experimentation or, on the other hand, might succeed quite as well in satisfying his instinct by occupying his mind in imagining all sorts of fearful horrors associated with such experimentation and become a rabid anti-vivisectionist. In both cases he is more apt than not to do great harm because he does not approach the problem with a balanced mind, but is more intent, unconsciously of course, upon the emotional satisfaction he will derive from the contemplation of suffering rather than upon the furtherance of certain researches in the first instance or the doing away with suffering in the second. If the individual would lead a well rounded life he must be able to bring all of himself to the problems he has to deal with and not have his efforts damned by a divided allegiance. In order to do this he must know himself and knowing himself means an ever-increasing field of himself over which he may extend conscious control.

Physicians must no longer be content to leave the personality out of the scheme of attempts to understand illness, for if the theories of the nature of the human psyche are correct then the mind is the central station, the clearing house for all the activities of the body, and so every physical symptom must have its reverberation in the mind of the patient and many of them cannot be adequately understood unless the psychic factors involved are taken into consideration. This means that he must no longer be content to take the patient's own account of his symptoms as final any more than he accepts a cough as final and neglects to examine the various organs, lungs, heart, larynx for its explanation.

When it is once generally recognized that mental reactions are as definitely determined and as reasonable as physical and physiological reactions there will be a decided step forward in the enlargement of the field of conscious control.

The environment need not be a matter of serious concern. An increased knowledge of it and its laws and the bringing of it more and more under control is the prominent fact of the present day civilization. During all this period of what has been called the evolution of the environment man has himself evolved and that evolution has been, among other things, the result of an ever-increasing extension of his field of conscious control, or,

speaking in more usual terms, an increase in the capacity to bring the instincts under the domination of the intelligence. This is of course evolution, but in the past it has been accomplished unconsciously and only incidentally, as it were, in the attempt to attain other ends. In order, for example, to attain to a position of eminence and power in the community one had to forswear acts of violence and injustice. The instincts had to be restrained, but that restraint was not an end in itself but only incidental to an entirely different conscious purpose. But now the program of psychology offers instead the conscious pursuit of that which has heretofore been only an incidental goal, the intelligent attack upon the problem of how to bring the instincts into the best service to the individual, how to run them instead of being run by them. This awakening consciousness of man of himself is a new instrument of civilization, a new tool, which man from now on will use to fashion his destiny or until at some time in the future another shall come to take its place.

Evolution does not alone take place by a gradual, slow, uniform progress in some given direction but by mutations, by saltatory advances, by the sudden creation of something new, something different. These sudden departures from the average are the real creative moments of evolution. They stand for a new method, supply a new instrument for dealing with reality and from them as starting points evolution proceeds rapidly until the possibilities of the new instrument have been pretty well exhausted, then evolution slows down, perhaps comes almost to a standstill, until nature gives birth again. Such new instruments, which have made the present estate of man possible, are the prehensile hand, language, self-consciousness. The new psychology that teaches that vision must be turned within, that consciously attempts to correct the error there rather than always see it without, is a new method, a new instrument with which to attack the problem of living. It matters not that man has always been moving in this direction, the great new fact is that he is now beginning, for the first time, to do so *consciously*. The possibilities are endless and particularly at this wonderful time in the history of culture, when civilization has been tried to the utmost, it is important that the structure which shall be erected from the primitive forces which have been loosed, shall be a better one

than has ever before been builded. To do this it is necessary to be able to brush aside the distortions wrought by the unconscious, to see through them all down to the very depths, to see the real problems and not waste energy in tackling false substitutes. A realization of the mechanisms by which such distortions are produced, by which the mental machine may fall into error, will help enormously to clear vision, will extend the field of conscious control. This is the true self-consciousness.

CHAPTER II

The Unity of the Organism

The Biological Point of View—Integration—Structuralization—Individuation

The history of the development of our ideas of mental disease has been conditioned by our concept of the nature of the mind and its relation to the body. So long as the psyche was thought of as a separate entity which inhabited the body during life and departed at the moment of death, leaving with the last breath to take its way though the window considerately left open for its departure, mental disease could be thought of in like terms as possession, and there was little prospect of discovering any correlations between mental symptomatology and conditions of physical illness. A later parallelistic psychology was able to view the two series, mental and physical, but failed to advance any logical basis to account for their parallel development that was more reasonable than that advanced by the elaboration of the analogy of a man and his shadow. It has only been possible to come to a practical handling of psychological material in proportion to the abandonment of metaphysical speculations on the nature of mind, whether material or immaterial, and upon its relation to the body, and a corresponding realization that mental development and increasing complexity of mind are part and parcel of that development and evolution the signs of which we have been accustomed to read in the bodily structure and appreciate that they too are an expression of the organism as a whole.

The concept of the organism as a whole is by no means a new one. Aristotle speaks of a "single and indivisible principle of unity" as underlying the arrangement and organization of the parts. But just as concepts grow in meaning with increasing knowledge so the concept of two thousand years ago, while philosophically the same, is yet based upon a knowledge of the organism which was relatively simple so that as we use it today the

concept organism-as-a-whole has vastly greater depth and breadth because based upon an immensely increased knowledge.

It is this concept of the organism as a whole which needs now to be emphasized as a basic point of departure for an understanding and adequate correlation of the various trends in psychiatry as they are unfolding an adequate understanding of the mentally sick individual. It is this point of view that needs to be developed, first from the biological angle; then from the angle of the more definitely psychological implications; and finally by illustrating the application of the principles evolved by the various tendencies which have led up to the present hypotheses which dominate present day psychiatry.

THE BIOLOGICAL POINT OF VIEW: *Integration.*—The special creation hypothesis implied a separatistic attitude of mind towards living creatures. Each living creature having come into existence by a special act of the Creator it was natural that it should be considered as quite apart from all other living creatures, as being an individual separate and distinct from all other individuals. Any organic connection between living beings was ruled out by the very terms of the hypothesis and correspondingly the quality of each individual's separateness emphasized by implication. It was a great step in advance when the theory of evolution supplemented the special creation hypothesis and science was able to trace each organism in its phylogenetic unfolding and demonstrate the homologies of its various parts in the several members of the series. The understanding of such relationships as those between the fore limb of a frog and the pectoral fin of a fish, or between the hoof of the horse and the toes of other quadrupeds was bound to make for an ever increasing appreciation of the organic unity of all nature.

The separatist attitude of mind, however, by no means disappeared but tended to linger on precisely in proportion to the extent of ignorance of living beings. Special creation receded from the individual to the species and from the species to life in general and still holds the field for those phenomena for which scientific explanations have as yet proved inadequate. What is more important than this, however, from this point of view, is a development of the separatistic attitude of mind in what has been

called by Ritter[1] the elementalistic, as opposed to the organismalistic, method of approach to the explanation of biological phenomena. This method seeks ever to get behind the obvious phenomena and find there some explanation. For example, the digestion of carbohydrates is explained by the functions of the salivary glands and pancreas; the functions of these glands by their component cells; the functions of the cells by the functions of the nucleus in part and further, plus the functions of the nucleus, by chemical composition and by the physical properties of colloid solutions. In other words, the functions of the organism are explained by the functions of its parts, the elements and substances which go to make it up. This is the elementalistic way of going at the problem, a method which is not to be disparaged for it is an eminently proper one, but only to be condemned when used to the exclusion of the organismalistic method which *per contra* would explain the elements by the organism. Both methods are necessary, each one being the complement of the other and necessarily reinforcing it. It is because the former method has been used too exclusively and because the latter has peculiar values for the understanding of the problems of psychiatry that it is necessary to emphasize the organismal theory in some detail and indicate its bearings upon these problems.

The organismal concept has been put forward from time to time by thinkers in the various fields of science and philosophy. Aristotle advanced this view. The philosopher Kant also advanced the concept that "the cause of the existence of every part of a living organism is contained in the whole." But although various thinkers did advance the organismal concept that concept never became controlling in the efforts of science to explain the living organism. Science was engaged in the discovery of ever more minute structural elements in the make-up of the organism and so always seeking for some explanation back of the facts of observation which it continually hoped would clear up the problem. The discovery of the cellular structure of plants and animals and the formulation of the so-called cell theory was one of those events which served to reinforce the elementalistic

[1] Ritter, William Emerson: The Unity of the Organism or the Organismal Conception of Life. Two vols. Published by Richard Badger, Boston, 1919.

attitude of mind. Cells were considered as the ultimate anatomical and physiological elements of living structure and organisms were somehow supposed to be explained as the sum of these cellular units. An understanding of the structure and functions of the cell was therefore necessary for an understanding of the structure and functions of the organism.

Even the earlier investigators of cell structure, however, saw the necessity of postulating some unifying principle to explain the organism as a whole and realized that the living being must be something more than just the mathematical sum of its several parts—in this instance the cells. This concept, that there was some principle of unity in the organism that was in addition to any function which could be discovered in its component parts has been variously expressed all the way from Aristotle to Driesch who said: "The organism, we know, is a system the single constituents of which are inorganic in themselves; only the whole constituted by them in their typical order or arrangement owes its specificity to 'Entelechy.'"[2]

The principle that the whole is of necessity something different from its parts is very old and must be accepted as obviously true but in erecting this principle into something definite and distinct, as distinct as any one of the parts, the old error is repeated of dropping into a static formulation and failing to see that what is useful in such a concept is the ability to realize that the principle of unity is dynamic: that neither the whole nor the parts have any separate existence: that they are but different aspects of an organic unity. Driesch's entelechy is not a something which has been added to the parts and so constitutes them a whole, it can only be a function of that whole and so a dynamic aspect of the organism.

This dynamic point of view is reflected in the attempts made to express this principle of unity. Thus the botanist DeBary expressed it in the aphorism: "Plants make the cells, not the cells plants," and the cytologist Wilson wrote: "The only real unity is that of the entire organism, and as long as its cells remain in continuity they are to be regarded, not as morphological individuals, but as specialized centers of action into which the living

[2] Driesch, H., cited by Thompson, D'Arcy Wentworth: On Growth and Form. Cambridge University Press, 1917.

body resolves itself, and by means of which the physiological division of labor is effected," while Ritter[3] attempts to give expression to the same idea in the formula: "The organism in its totality is as essential to an explanation of its elements as its elements are to an explanation of the organism."

This unifying principle, conceived of as a dynamic function of the whole is the *function of integration.* The word function carries the dynamic idea and as applied to the whole organism gets away from the objections to such a term as entelechy which implies that, because it is a name, it is applied to a something, in itself more or less concrete, which has been added to the parts and therefore, as already indicated, smacks of the elementalistic way of looking at the problem.

It is but natural that the elemental and the organismal formulations should come to center about the cell theory because the discovery of the cellular constitution of living organisms appeared to be a distinct step in the direction of finding those ultimate structures in which an explanation of the organism might be conceived to rest. Although the organismal concept might not have been fully grasped in all its important implications the elemental was found to be sadly lacking for any real understanding of the living organism. If the cell, as such, is in reality the ultimate unity that the elementalist conceives it then the only difference between the protozoan and the metazoan is a quantitative difference and a single cell of the metazoan body is homologous to the unicellular protozoan. Such a hypothesis as this it seems needs only to be stated and the statement carries its own refutation although much thinking was carried on along such lines. The metazoa and metaphyta are not just aggregations of cells, not simply one cell multiplied by a certain number, the mathematical sum of the cell units, but as Dobell says:[4] "The body of a protozoan is not the homologue of a single cell in the body of a metazoan," rather as he contends, the protozoan does not correspond to a single cell of the metazoan but to the whole body.

With the advance of biological science the cell failed to maintain its place as an ultimate structural element of living matter and the elementalist continued his search in regions of different

[3] Op. cit.

[4] Dobell, C. C., cited by Ritter, op. cit.

dimensions for the explanation of life phenomena. The explanation of the cell was sought in the functions of its nucleus and finally in its particular physical and chemical constitution. Chemistry had meantime advanced and it came to be appreciated that, while the cell was the center of important chemical processes those processes were in the dimensional region of the colloids. In fact many of the particular pictures which it had been the habit to associate with living processes could now be reproduced in the laboratory by the use of colloid solutions. Leduc,[5] for example, reproduced very accurately the karyokinetic figures by the processes of liquid diffusion but Leduc's figures lacked life, they were not produced as living processes so that Hopkins speaking of the life of the cell from this point of view says:[6] "Its life is the expression of a particular dynamic equilibrium which obtains in a polyphasic system," but that life "is a property of the cell as a whole, because it depends upon the organization of processes, upon the equilibrium displayed by the totality of the coexisting phases."

The same arguments might be brought to bear in dealing with other elements of the organism, real or hypothetical, as they come up for review as science has progressed in the process of its dismemberment. Take for example the chromosomes which have come into such repute as the bearers of hereditary characters and their hypothetical components, the determiners, which have been insisted upon so strongly by Weismann and his school of inheritance, and about which such a storm of argument has raged apropos of the continuity of the germ plasm and the non-inheritance of acquired characters. But applying the same formula to the chromosomes we must recognize, as Ritter[7] very well says, that they are "indispensable tools or agents of the organism rather than entities, ultimate and supreme in their power over the organism," and further that they "even though bearers of heredity, are causally explained by the organism in the same sense that the hereditary attributes of the organism are causally explained by the chromosomes." It is significant in connection with this problem of heredity that such hypotheses as the continuity of

[5] Leduc, S., The Mechanism of Life. New York, Rebman Co.
[6] Hopkins, F. C., cited by Ritter, op. cit.
[7] Op. cit.

the germ plasm bid fair to be taken out of the realm of theory and discarded because of the accumulation of concrete facts such as those recently stressed by Conklin.[8] At least such a significance is implied in the fact that it is possible to map out, in the unfertilized egg, areas which are destined to play special rôles in the subsequent cleavage, such as ectoderm, endoderm and mesoderm.

Other concepts might be similarly dealt with. For example tropisms considered as manifestations of specific chemical substances, heliotropism being dependent upon a hypothetical photosensitive substance, easily comes to be used after the elemental manner. Reflexes, when considered out of their relation to the rest of the animal; cortical centers when considered as definite concrete areas which control certain functions; and ideas, as will be more fully seen later on are subject to the same criticism. It is quite all right, in fact necessary, to dismember the living organism, pull it apart, as it were, and consider each part, each function, each aspect separately with a view to defining it; but when that is accomplished it is equally necessary to put the organism together again and observe the part the particular element in question plays in the whole, living organism and unless this is done the function under consideration will not have been fully encompassed, will not have been seen all around, not have been fully appreciated in all of its bearings, understood in its full significance.

Having set forth what is meant by the organism as a whole, the fact that the whole is something different from the sum of its parts, and having indicated that the difference is due to the function of integration, it is necessary to indicate how this function works as a function of the whole rather than as the sum of the functions of the parts. The work of Child[9] is of the first importance in this connection.

Structuralization.—Child sets out to discover what constitutes a living or organic individual—what is at the basis of its unity

[8] Conklin, E. G., Heredity and Environment in the Development of Men. Princeton University Press, 1917.

[9] Child, C. M., The Basis of Physiological Individuality in Organisms. Science, April 14, 1916. Individuality in Organisms. University of Chicago Press, 1915. Senescence and Rejuvenescence, University of Chicago Press, 1915. The Origin and Development of the Nervous System From a Physiological Viewpoint. University of Chicago Press, 1921.

and the orderliness of its behavior. The structure of an individual is purely a matter of anatomy, it is the orderly integration of the structural elements which remains to be accounted for. In other words it is not the static but the dynamic individual that needs defining. After a review of the several theories he discards them all, even the more recent physico-chemical theories which see in chemical transportation the fundamental element in physiological correlation. While chemical correlation is without doubt a factor it is only possible in an already existing individual in which some sort of order already maintains. Any adequate theory of the individual must therefore be dynamic and deal with processes rather than with structures. Contrary to the assumption of biologists who believed that physiological individuality was inherent in protoplasm and dependent upon a self-determined organization he sees physiological individuality as a function of the relation between protoplasm and its environment.

The nature of the integrating factor of relationship he arrives at by assuming first a bit of undifferentiated protoplasm. Now let a difference at some point in the environment act as a stimulus at a given point at the surface of this protoplasm. The immediate result is an increase in activity at this point, which dynamic effect is not limited to the point of contact but tends to spread in ever increasing widening waves of decreased energy much like the waves which result when a stone is thrown into a quiet pool.

As the wave of activity spreads it successively acts as stimulus so that the wave represents the spread of the increased activity originally set in operation by the stimulus from the environment. As it spreads, too, there is a constant decrement in its effectiveness, so that a dynamic gradient is established, the point of greatest intensity or highest rate of activity being the point of incidence of the original stimulus. A passing stimulus produces only a passing gradient, while a long continued, or often repeated, or very strong stimulus, or all combined, tends in proportion to these several qualities, to establish permanent changes in the protoplasm along the path of the increased activity. The dynamic gradient tends to become persistent and consists fundamentally in a change in reactivity, irritability of the protoplasm. Finally this dynamic, or irritability or metabolic gradient, as it really is because here tissue changes go on most rapidly, becomes the start-

ing point of a permanent quantitative order in the protoplasm or a physiological axis of the simplest form of individual. This first order to arise is the chief, polar, or major axis, while similar orders developed later determine minor axes and on the basis of these is established the symmetry of the individual.

This matter of symmetry has been largely discussed in the past. Spencer in his Principles of Biology[10] has devoted a great deal of space to it and concluded that it was a function of the relation of the animal or plant to its environment. For example, an animal moving through the water will, by that very fact, expose its forward end to the operation of forces quite different from those to which the other end is exposed and so it tends to become different. Thus begins a polar differentiation which results, other things remaining equal, in radial symmetry. Now if one surface is already uppermost and the other lowermost a further differentiation will ensue resulting in a bilateral symmetry. This is precisely the state of affairs and the result which Child sees when he points out the results of a stimulus applied to an undifferentiated bit of protoplasm. There results what he calls a dynamic gradient which gradient if maintained ultimately becomes one of the axes of the individual, all of which are arranged in various degrees of subordination to the major axis. It is such an arrangement about a major axis which is the fundamental fact of the physiological individual, according to Child, a conclusion reminiscent of Spencer, who considered the individual as "any center or axis that is independently carrying on that continuous adjustment of inner to outer relations which constitutes life."[11]

Briefly set forth these are the methods of experimentation which Child used. They are significant for the purposes of this exposition because they serve to write large the stated conclusions and to make their fundamental soundness more evident.

The experimental work was done for the most part with fresh-water planarians, particularly the *Planaria dorotocephala, P. maculata,* and the *P. velata.* The experimental animals were subjected to immersion in solutions of various strengths of potassium cyanide. If the solution is strong enough to kill without

[10] Vol. II.

[11] Principles of Biology, Vol. I.

acclimation but still not so strong but that the differences in susceptibility may appear clearly, it will be found that death begins at the head and proceeds posteriorly and that the lateral margins die before the median region, thus proceeding along the axial (metabolic) gradients; and as between different groups of worms disintegration begins earlier and proceeds more rapidly in the younger than in the older worms, that is, in the worms having the highest rate of metabolism. The susceptibility therefore varies directly as the metabolic rate.

If a concentration of cyanide is used which does not kill the animals directly but permits of a certain degree of acclimation it will be noted that the relation between the survival time and rate of metabolism is the opposite of that when the solution kills. Under these circumstances the younger animals, that is, those with the higher rate of metabolism, live the longer, while it is the older who die first. Here again the degree of susceptibility corresponds to rate of metabolism.

Such is the nature of the experimental work which demonstrates the existence of a dynamic gradient and which thus refutes the hypothesis that the unity and the order in an organism is dependent upon the transportation of substances, in other words, consists in chemical correlations. Rather the correlation is dynamic and dominance is dependent upon transmitted change or excitation from the region of highest metabolic rate—the head region. The nature and the accumulation of substances in the different parts of the body are, therefore, not dependent upon their transportation, but upon their relative stability in relation to the metabolic rate of the particular part. In general only the most stable substances can accumulate in regions of high metabolic rate, while substances of less stability may exist where the rate is lower so that each level, so to speak, of the gradient comes to be characterized by certain substances, and qualitative differences in the different parts of the gradient arise, characterized by specific substances. As Child well says, chemical transportation cannot account for the origin of the individual, because some sort of an individual, as such, must exist, having some sort of orderly relation between its parts, before chemical correlation between those parts can take place. From this point of view, therefore, hormones which have sprung into such prominence in the last

few years become of secondary importance relatively to the nervous system, which in its relation to other parts is "the final expression of relation which is the foundation and starting point of organic individuation.[12]

It has already been pointed out how and why an animal tends to develop differences in the different parts of the body because of, and dependent upon, the different relation of these parts to the environment. How, for example, a uniform bit of protoplasm by the mere fact of its movement through water would develop a difference in the extremity which came first and most intensively in contact with the environment—the head end. To put it differently—a mass of protoplasm without an axis becomes the recipient of a stimulus. The first result of such a stimulus[13] would be an increase in the metabolic rate at the point stimulated and this change in rate would tend to radiate from that point like the waves on a pond from the point where a stone has been thrown in. Immediately the bit of protoplasm has an axis, the important characteristic of which is that the metabolic rate is highest at the point of the application of the stimulus and tends to decrease in direct proportion to the distance therefrom. The limit of effectiveness of the transmission varies in accordance with the strength of the stimulus and the nature of the transmitting material (protoplasm). The bearing of this matter of the effectiveness of transmission, or rather the distance of transmission, upon reproduction is very well shown in the case of the *Planaria dorotocephala*.[14] This flatworm undergoes from time to time a species of agamic reproduction by fission. The rear end of the body (posterior zooid) fails to be controlled by the anterior end, attaches itself to the ground as the worm crawls forward, and holds fast while the forward end tries to go ahead. The substance between gets thinner and thinner and finally breaks. The posterior zooid, now separated from the control of the anterior end, proceeds to develop a head of its own and to become a complete worm.

To revert to the transmission of energy from the point of stimulation. If the same character of stimulus is repeatedly ap-

[12] Individuality in Organisms, p. 48.

[13] Individuality in Organisms, p. 30 et seq.

[14] Senescence and Rejuvenescence, Ch. VI.

plied to the same portion of the animal; if, for example, the animal keeps thrusting the same part of its body forward into the environment, then the protoplasm along the lines of the transmission of energy from the stimulus will tend to organize into a chemico-physical equilibrium with the rate of energy change. In other words substances will tend to accumulate at the different levels of the gradient which are in dynamic equilibrium with the energy transmission at those levels—the gradient becomes organized.

Not only is the principle of the organization of the gradient visible in the processes briefly outlined in this illustration, but another principle of as great importance comes out with equal clearness, namely, that structure is organized function, or, as Bergson would perhaps put it, structure is the organization of the past, or, organization is the *structuralization of function* or of the past. From this point of view the nervous system, as a structuralized dynamic gradient or as an organized system of relations between the parts of the organisms, is given a new meaning.

Now of course as Child has very well shown in the simpler organisms, an individual has many gradients. Among the simpler individuals these are expressed in the various axes of symmetry. Among the higher animals each organ would have a dominant gradient of its own and probably many subordinate ones, while the total interplay of forces in the individual can be visualized as playing along the axes of these multitudinous gradients, now reinforcing, now inhibiting, according as their energy rate is mutually assimilable or not, all of this great number of gradients held in an orderly organization because of mutual relations of dominance and dependence and all in the last analysis under the final domination of the gradient of highest metabolic rate, which in turn is dominated by its region of highest metabolic rate—the head end.

From this presentation it is easy to see how erroneous is the ordinary way of thinking of the dominance of the head end of the body. It is quite usual to think of the psyche, for example, as if it were a concrete entity which made its entrance upon the stage at some particular point in evolution—the only question is, just when? Many people may say that an animal cannot reason, has no soul (psyche), or even that children have no souls or are

only little animals, while in the Orient, as is well known, woman is supposed to be without a soul. Aside from these rather crude ideas, however, there seems to be a wide feeling that evolution has taken place, so to speak, by a series of superpositions and that finally a head and then a psyche were added (evolved). From the presentation thus far it will be seen how far this is from the truth. There never was an organism, no matter how simple, how far down the line of evolution, but had a head end. The organism did not first develop as a group of organs and *then* develop a centralized control and coordination of these organs, but the development of the centralized control and coordination went along *with* the development of the organs. A moment's consideration will serve to convince one that this must have been so, inasmuch as the function of the various organs is in large part to serve the organism as a whole. No such service could be rendered without organization, and centralized authority is the basis of organization. The history of the head end, the head, the psyche then reaches as far back as the history of life itself, in fact is coterminous with that of life. All the forces which have been operating to produce the developed organism have also been operative in producing the developed head control. More will be learned of the significance of this fact later in the discussion of more specifically psychological problems.

Here is a setting forth of evidence, based upon observations and experiments, which tends to show not only that the organism is a unity but how that unity has come about, the forces which that unity expresses, the nature, in dynamic terms, of the relation of the parts to the whole and of the whole to the parts, how organization develops and as it develops becomes structuralized. In the light of such an hypothesis such formulations as Sach's law[15] that "growth determines division and not division growth" acquires added significance. It can be understood why it is that, as Whitman so well says,[16] "physiological unity is not broken by cell-boundaries," and that "comparative embryology reminds us at every turn that the organism dominates cell-function, using for the same purpose one, several, or many cells, massing its material and directing its movements and shaping its organs, as

[15] Cited by Ritter, op. cit.

[16] Cited by Ritter, op. cit.

if cells did not exist, or as if they existed only in complete subordination to its will, if I may so speak." "Every organ is compelled to follow the morphological plan of the organism."[17] To stick to the cell as a fair example of a structural unit Child's point of view makes understandable the statement of Wilson:[18] "The only unity is that of the entire organism, and as long as its cells remain in continuity they are to be regarded not as morphological individuals, but as specialized centers of action into which the living body resolves itself, and by means of which the physiological division of labor is effected."

Already in this effort of Child's to explain the dynamic foundations of the individual organism there begins to emerge some idea of what that group of phenomena stands for, to which the collective term mind is given. Each individual organism is organized and structuralized on a plan that of necessity integrates all its parts, and what is of the greatest significance for our purposes, integrates them under the domination of a head end, that is, a dynamic locus wherein are concentrated those activities to which, later in the course of evolution, the name of mind is given. Before approaching this specific psychological problem, however, it will be well to consider briefly somewhat more of what is meant by the term individual.

Individuation.—Up to this point it has been attempted to show that the organism as a whole is something different from the mathematical sum of its parts, either structurally or functionally; and that that difference is dependent upon the function of integration. It has also been attempted to show how such a function of the whole operates by the establishment of dynamic gradients which become organized and laid down in structure—the structuralization of function. It will now be indicated how these processes are much more specific than have thus far been implied and that as a matter of fact their specificity tends always in the direction of individuation whereby not only related forms tend to resemble each other in the general facts of their structure and function, but that they tend also to differ from one another to an extent that constitutes each an individual, in certain respects different from all other individuals, and how as they proceed along

[17] Ritter, op. cit.

[18] Cited by Ritter, op. cit.

the pathway of evolution to ever more complex beings the individualistic functions of integration and structuralization become ever more pronounced.

Integration and structuralization by virtue of the nature of the forces integrated and structuralized take on specific characters so that while a frog, a horse, a human being all are living organisms they are more than that, they are specifically a frog, a horse, a human being and as such can be readily recognized and distinguished one from the other. It is to this tendency to more specific differentiation that the term *individuation* applies, a process the increasing specificity of which in the higher organisms, such as man, differentiates each member of the species as distinct, because different, from every other member.

This tendency to individuation is already in evidence in protoplasm. Attempts to fuse protoplasm of different species gives conclusive evidence that at least such fusion is more possible between nearly related forms. Although the evidence is not final it is sufficient for discarding the general term protoplasm so far as it implies identity of constitution in different forms of life and speaking instead of protoplasms.[19] When it comes to the more highly specialized cells, such as the egg cells, there can be no doubt. As Conklin puts it:[20] "Furthermore, from its earliest to its latest stage an individual is one and the same organism; the egg of a frog is a frog in an early stage of development," or as Ritter puts the same thought:[21] "it is the attributes of a horse as *a horse,* and not as an animal generally, that elicits our particular interest in the horse. Zoology rightly understood is preeminent among all the sciences as the science of particulars."

The process of individuation makes for ever greater specificity the higher the organism in the scheme of evolution. The differences between many of the unicellular organisms is much less obvious than those between the higher organisms. Take for example the matter of the reflex. Sherrington very well says:[22] "the reflex reaction cannot be really intelligible to the physiologist until he knows its aim," and he adds "and he can know its

[19] Ritter, op. cit.
[20] Cited by Ritter, op. cit.
[21] Op. cit.
[22] Cited by Ritter, op. cit.

aim only by considering it in the light of the organism's entire complex of normal activities; i.e., in accordance with the conception of the organism as a whole." What this means in the way of individuation is well expressed by Ritter[23] in respect to reflex action, as follows: "A vast mass of evidence makes it almost certain that a dog's scratch-reflex is different from a cat's, and both are different from an ox's, a frog's, and so on." And in discussing how the dog's reflex can be explained, for example, what chemical changes can be called upon to account for it he says that "since the reflex is an indubitable reality, there is no escape from the conclusion that something other than the original inorganic simples must have intervened between these simples and the reflex," and adds, "the dog is what has intervened between the chemical simples and the reflex." "A dog, and a dog only, is able to cause oxygen, carbon and the other elements to reveal those particular scratch-reflex powers. The dog comes in as a *sine qua non* to the production of, and hence to the causal explanation of, the particular group of activities under consideration." The principle here, as elsewhere, is that "analysis alone is incapable of interpreting, of understanding organic beings. No natural object which in its nature is more distinctively synthetic than analytic can be understood by knowledge-processes which are more analytic than synthetic."[24]

The great organized task of individuation has been the production of species but the specificity of the process has extended to still further refinements in the production of subspecies, of variations, and finally it comes to its most complete fruition in the individual as such. The production of the individual, as distinct from all other individuals, grows out of the fact that the life history of each organism must of necessity be to some extent different from that of all others no matter how closely related they may be nor how similar their environment, and it is on the basis of just these differences that these peculiarities of each individual are based which make it different from all others.

This process of individuation is seen everywhere going forward constantly.[25] The increasing recognition of the individual

[23] Op. cit.

[24] Ritter, op. cit.

[25] Ross, E. W., Individuation. The American Journal of Sociology, January, 1920.

is one of the important aspects of social evolution: the principle of "self-determination" is the cry of the smaller countries for individual recognition: in the Roman family the child was completely subordinated to the will of the father, now the child, or individual, has certain rights conceded to it and they are safeguarded by the law: a state religion offered little chance for individual expression, the religion split up into a number of camps to suit all tastes, and now each person is conceded the privilege of entertaining such religious views as he individually may prefer: in the Middle Ages the peasant was a part of the estate and the compensation for his labors was a place to live and food: now each worker is paid in money and it is left to individual taste when and how he shall live: at present one of the elements in the controversy between capital and labor is the demand by the latter that labor shall not be considered as a commodity, the laboring man insists upon being dealt with as an individual: the feminist movement emphasizes the desire of the women no longer to be dealt with en masse, as women, but, freed from legal disabilities, considered as individuals and accorded all those advantages and privileges which they can secure as a result of their efforts and the free exercise of their abilities: the same tendencies toward individuation can be traced in many other directions, for instance, in the general medical aphorism, "treat the patient, not the disease," which must be emphasized over and over again to counteract the tendency to treat the disease as such without a sufficient appreciation of just how the individual patient is reacting to it: in the same way there is a growing tendency of criminology to advocate dealing with the criminal rather than with the crime, to search out the individual factors and by an understanding and appreciation of them perhaps being able to work out something constructive in the life of the offender: in psychiatry, too, the tendency is towards an even greater individualizing of the patient until in the treatment by psychoanalysis there is, perhaps, the most exquisite individualizing of the patient in the whole field of medicine.

These principles will be traced further in the dynamics of the living organism.

In this chapter there have been developed three principles which govern the organism in the course of its growth, develop-

ment, and evolution. While the study of the parts of the organism is not decried as such it has been shown that no adequate understanding could be reached unless it was considered as a whole and that by such a consideration certain new factors entered into the problem which modified the conception that regards the functions as manifested by the parts. This added factor is the function of integration and in the dynamics of this function of integration the hypothesis of Child has been put forward to show how the process of integration became structuralized along the lines of dynamic gradients. It has further been indicated how the function of integration, tending always to become structuralized, tends also to an ever increasing individuation of organisms whether that individuation be considered from the structural, physiological, psychological or social point of view. A further elaboration of these principles will show how they are fundamental to an understanding of the psyche and the problems of mental disease.

CHAPTER III

The Dynamics of the Organism

The Canon of Physiology (The Conflict)—Ambivalency

In the last chapter it was shown that the organism is not a mere aggregation of parts but that it is something more, namely, it is an integrated whole. It will now be attempted to point out how that whole works, or at least call attention to those factors upon which its working efficiency depends and which are pertinent to the aim of this book. In other words, an attempt will be made to show the moving factors in the integrated whole of the organism, the factors which make it dynamic.

A biological discussion of the dynamics of the living organism would commence with its inorganic and non-living constituents, the strictly physical problems that are involved in determining the forms of parts—morphology—such as the influence of stresses in fixing the structure of the skeleton, such matters as surface tension, adsorption osmosis, torsion, diffusion, viscosity, etc. Only a sufficient pause will be made in the discussion of such matters as to indicate that the same principle, which it is wished to emphasize because of its importance to the matters at issue, underlies these manifestations at the physical level as underlies certain phenomena at the higher physiological, psychological, and social levels. This principle, which has been variously expressed, is known as the theorem of Le Chatelier[1] and seems to be really an expression of the law that action and reaction are equal but in opposite directions. This theorem is that "a system tends to change so as to minimize an external disturbance." The boughs of a tree bend to the wind in proportion to its strength, when the wind is strong the bending is great, when the wind lets up the boughs straighten: in firing a cannon there is a recoil: if an electric current is passed through a solution a counter current is formed which tends to reduce the electrical stress: in the struc-

[1] Bancroft, W. D., A Universal Law.

ture of bone the arrangement of the bony trabeculae follows the theoretical pattern of a stress-diagram,[2] the ossification taking place along the lines that take up, absorb, the stresses: pieces of metal habitually stressed in certain directions tend to so rearrange their parts that they offer greater resistance, the particles which lie obliquely to the lines of tension and pressure are displaced while those that are parallel or perpendicular to it remain in place,[3] for example, a piece of tow can support but little weight but when carded and all its fibres are arranged parallel to one another, it makes a strong cord. The principle here is that force, operating in any direction, has to overcome resistance, little or great, in proportion to the strength of the force, and that the push and the resistance are in opposite directions and tend to equalize—action and reaction are equal and in opposite directions: the pendulum swings an equal distance in each direction. This is the *principle of the conflict* and the conflicting forces being in opposite directions give an ambivalent character to every such situation, the *principle of ambivalency*.

The application of this principle to inorganic nature might be illustrated extensively to show how it served to explain the processes continuously going on therein. How, for example, any group of particles must of necessity immediately be thrown out of equilibrium by the mere fact that any incident force necessarily affects the different particles differently because of their different distances from the point of application of the force and their different orientation towards it. A piece of hot metal, in cooling, tends to cool more rapidly at the surface than at the center. The illustrations, however, will be confined to the living organism and recall what has already been set forth in the previous chapter in describing Child's hypothesis of the laying down of dynamic gradients. The illustration there given was a stimulus applied to an undifferentiated bit of protoplasm. Such a stimulus produced an area of increased activity at the point of application which spread in waves of decreased energy along lines of least resistance. Such a dynamic gradient tends to become permanent in proportion to frequency and strength of the stimulus and finally to be laid down in structure like the trabec-

[2] Thompson, D'Arcy Wentworth: On Growth and Form. Cambridge University Press, 1917.

[3] Thompson, op. cit.

ulae in the shaft of a long bone. Such a gradient then becomes a permanent part of the structure and by virtue of its presence tends still further to multiply the differences with which the organism responds to incident forces. Complexity makes for increasing complexity on the principle of what Spencer called[4] the "multiplication of effects." This principle has been called the canon of physiology and is expressed by Frédéricq as follows:[5] "A living being is adjusted in such manner that each perturbing influence provokes to activity a compensating apparatus which brings about its neutralization and the repair of the damage." Animals in a cold climate develop thick suits of fur to prevent the radiation of heat: desert plants, when the supply of water is scant, develop a considerable growth of hairs which impede the circulation of the air and thus lessen the rate of evaporation: the submerged leaves of aquatic plants do not develop the supporting framework of aërial leaves: an irritant in the eye is washed out by an increased secretion of tears, in the gastro-intestinal tract by vomiting and purging: plants and trees that have been seriously injured tend to reproduce, produce flowers: hunger prompts the finding of food to neutralize the uncomfortable feelings.

Kempf has more recently reformulated these same principles[6] to apply more specifically to the psychological level in terms of cravings as motives for conduct which tend to produce behavior calculated to neutralize—satisfy—the craving. Fear prompts those activities that lead to safety: anger causes behavior calculated to overwhelm the enemy: the desire for money brings about conduct calculated to acquire it: the desire for food causes conduct looking to its procurement: love prompts the acquisition of the loved object: lonesomeness causes the individual to seek companionship: pain induces the sufferer to seek relief.

At a still higher social level the same principle is at work. A shortage of labor causes a rise in wages with a consequent migration of laborers until the industrial tension is neutralized: a shortage of any commodity causes the price to rise and thus attracts more persons to undertake its manufacture thus increasing

[4] First Principles.

[5] Cited by Thompson, op. cit.

[6] Kempf, E. J., The Autonomic Functions and the Personality. Nervous and Mental Disease Monograph Series, No. 28.

production and neutralizing the tension: increased production causes prices to fall and the stimulus to production being less the production falls off until demand and supply are more nearly equal: illness produces a demand for doctors: the demand for doctors produces a demand for medical schools: the demand for medical schools produces a demand for teachers: the demand for teachers produces a demand for endowments to pay their salaries, etc., each new factor operating as both a satisfaction of a demand and a creator of a new demand on the principle of the multiplication of effects already alluded to.

Every dynamic situation, therefore, can be resolved into two component factors, namely, a force tending to produce motion in a given direction and a force opposed to it tending to produce motion in the diametrically opposite direction. Such a situation occurring in a living organism is termed a *conflict,* and the two opposing forces are designated as *ambivalent opposites.* It is important to inquire into the operation of this principle more particularly as it applies to the human individual and especially as it expresses itself in his psyche.

It has already been briefly indicated how these principles make for the elucidating of certain facts of structure—morphology. In the realm of physiology they are again found operative. In the phylogenetically oldest portions of the nervous system, the autonomic or vegetative nervous system,[7] this principal of ambivalency is laid down as a basic factor in its organization. The sympathetic and autonomic nervous apparatus operates in constant antagonism. This is typically seen in the innervation of the heart, the sympathetic increases cardiac action, the autonomic inhibits it. Similarly in other functions, the autonomic increases the secretion of sweat, the sympathetic inhibits it; the autonomic increases intestinal secretion, the sympathetic inhibits it and so on with other functions. Further, these divisions of the nervous

[7] The nomenclature of this portion of the nervous system is somewhat confusing. It has all been referred to as the sympathetic and as the autonomic nervous apparatus. The usual terminology refers to the thoracio-lumbar outflow as the sympathetic and the vagus, mid-brain, and sacral outflow as the autonomic or the para-sympathetic. Dr. Jelliffe and I prefer to call it all the vegetative nervous apparatus and divide it into two parts, the sympathetic and autonomic (see Jelliffe and White, Diseases of the Nervous System).

system are activated by the secretions of the endocrine glands, the hormones of the thyroid, thymus, adrenal, pituitary, pineal, pancreas, gonads, so that there is a complicated system of opposed activating and inhibiting mechanisms consisting of the endocrine glands, the hormones, and the vegetative nervous apparatus. In this dynamic equilibrium of the organism Ritter[8] sees a "ceaseless play of constitutively antagonistic forces and structures" especially clearly illustrated by these "cooperative antagonisms" at the level of the vegetative nervous system and which he aptly likens to "the performance of the tight-rope walker, which depends on numberless balancing activities. Let the performer be really motionless in every part for one instant, and he falls."

At the psychological level this principle of conflict and ambivalency is equally in evidence. There is a constant back and forth swing between opposite paths of conduct, the so-called "parallel path of opposites," illustrations of which are constantly in evidence in everyday acts. A given craving, hunger for example, prompts the getting of food but the individual has no money with which to purchase it. Stealing offers as a means of solving the difficulty but the social taboo and the possibility of arrest and punishment act as hindrances to such a method of procedure. If the individual has credit he may have time and opportunity to earn the necessary money. If, on the other hand, the craving is very great and insistent it may be a sufficient stimulus to overcome all objections to stealing. In both instances the individual is torn between two lines of conduct, right and wrong —ambivalent opposites—and finally yields to the motive which at the moment is the stronger: he goes to work if he is not too hungry and the social instinct dominates, or if the hunger is too great he steals.

It is the same with all activities, though not quite as obviously as in this illustration. Every ideal stirs to activities which would bring it to pass, but at the same time there are tendencies in the opposite direction, they may be grouped for present purposes under the generic term laziness, tending to offer resistances which interfere with doing the necessary things, and the resulting conduct is what it is because one or the other dominate the given

[8] Op. cit.

situation at the particular moment. The wish is to become eminent in some particular direction, eminence means hard work for an extended period of time, but it is more agreeable to play. The wish is for riches, riches mean work and sacrifice, it is easier to put off the decision to work. Belief in honesty, virtue, truth are tempted, and so man weaves his way in the maze of adjustments which his daily life demands of him, pushed and pulled, now in this direction, now in that, his resulting actions depending upon the strength or the weakness of his desires and aspirations, his attractions and repulsions.

When it is realized that instincts and emotions are the oldest aspects of the psyche, and that the oldest part of the nervous system, the vegetative, controls the visceral phenomena which give them expression, trembling, involuntary emptying of bowel and bladder, movements of the pupil, horripilation, alterations in the rhythm of respiration and heart beat, secretion of sweat and saliva, caliber of blood vessels, it can be seen how these oldest forms of reaction have been laid down in structure and how intimate is the correlation between the nervous system and the psyche at these levels.

Later in the course of evolution there come the development of ideas, the more intellectualistic aspect of the psyche, and knowledge is opposed to instinct bringing it under control and direction. Now the individual with a definite idea of a goal to be reached is able to so control his instinctive promptings as to succeed or, if he fails, then there are the resulting regrets for something definitely conceived which has been lost. The feelings and the ideas at the psychological level are but the expression in psychological symbols of the physiological changes that are taking place at lower levels. The complex mosaic of the psyche is part and parcel of the organism as a whole, one aspect of its many-sidedness, and there, seen in its symbols, if they can be read aright, is but a representation of all the things that the organism as a whole is trying to accomplish, albeit at a higher developmental level.

Verily the organism is an integrated whole, all of its parts attuned to function in accord, and when the action systems are set to any particular task all the machinery is brought into adjustment for its accomplishment and the psychological reverberations express in symbolic language the motif.

There is in the Congressional Library an heroic mosaic of Minerva. It is made of little squares of marble of various colors, all fitted together in such a way as to produce the resulting figure. If any particular bit of marble were removed it would be found to have certain dimensions of length, breadth, and thickness and its removal would leave a vacant space of the same size. But the organism is not such a mosaic. It is a living, functioning, dynamic thing each part of which is related in its activities to every other part and no portion of which can be removed, damaged, or altered in any way without reflecting the change in all the other parts. All the organic functioning parts of the human organism are related and find their final and highest expression in symbolic patterns which set forth the tendencies of the organism as a whole in what are called psychological terms. But the symbolic pattern is itself a living thing so constructed as to shift its parts in intimate harmony with the whole and in its constant shiftings and changes to reflect that whole. It therefore reflects and expresses in symbols the conflict, and these symbols express over again the opposite tendencies which are struggling for control. Conflict and ambivalency are fundamental and necessary concepts with which to approach the realm of the psyche in its various manifestations.

This way of thinking of the living organism does away at once with the necessity, at least for pragmatic purposes, of inquiring into the nature of mind as something apart from the body, although of course such a question may still present as a legitimate subject for metaphysical discussion. Mind and body as separate entities belong to the elementalistic way of looking at things and, as has already been indicated, hark back to mediaevalism. It is no longer permissible to think of mind as something which is added somewhere in the course of organic evolution. The addition of the relatively more complex and controlling functions in the process of development and evolution is not comparable to the superposition of brick upon brick in the building of a house, rather such added functions grow out of what has previously developed. Living beings by virtue of the very fact that they are living and are organized show the existence of organization in the laying down of gradients, and the main gradient shows from the very first a differentiation into a head end.

These developmental gradients are but the organized interrelations of the several parts of the organism laid down in the structure of the gradient. In other words, the various adjustments which the organism is called upon to make in its relation to its environment, its functions, are integrated and laid down in the structure of its several dynamic gradients: "We must seek for the integrating factor in the relation between living protoplasm and its environment."[9] This integrating factor has already been traced to the stimulus and the changes following its incidence. The nervous system is "the final expression of relation which is the foundation and starting point of organic individuation."[10]

It is quite evident that, from this point of view, it is not only no longer permissible to think of the psyche as something which has been added in the course of evolution, but that the history of the psyche, far from being a relatively short one as compared to the history of the body, as ordinarily conceived, is of necessity of equal length. Just as the potentiality of the later developed heart, lungs, liver, stomach, kidneys were included in the early simple processes of ingestion, digestion, egestion and circulation, so also were the potentialities of the later manifestations of psychological activity included in those simple forms of response which included the conduct of the organism as a whole, such as, its seeking for food, avoidance of danger and conjugation.

This concept of the psyche which makes its development contemporaneous and coterminous with the development of the individual as a whole and all-inclusive in its centralized relation to the different parts, makes its inclusion in any study of the individual necessary if that individual is to be really understood and any adequate attempt made to reconstruct in thought the individual from the point of view of the dynamic factors which have produced the end result, for example, as seen in the patient who applies for help.

It is then the primitive, phylogenetically older, archaic types of reaction which are served by the oldest parts of the nervous system, the vegetative, and the motor sets which are conditioned at this level are those of the smooth or involuntary muscle and the glandular apparatus. Later in the course of evolution there

[9] Child, op. cit.

[10] Child: Individuality in Organisms.

arises the phylogenetically very much younger portion of the nervous system, the cerebro-spinal or sensory-motor, consisting largely of the neuro-muscular apparataus as ordinarily thought of, that is, in the main, the pyramidal tract system and the voluntary musculature. This apparatus is calculated to bring about, with far greater nicety, the motor responses that so relate the organism to its environment as to make possible the securing of stimuli which will neutralize the instinctive cravings. The distinguishing features of this more recent development of the nervous system, the cerebro-spinal, are the distance receptors which function as analyzers of the environment and as a result of such analysis condition relatively exact responses to its several qualities.

Recent studies have indicated that in the striped muscle there is a double system of innervation which so relates the autonomic apparatus (vegetative nervous system, smooth muscle, and endocrine glands) and the cerebro-spinal neuro-muscular apparatus (the projicient system) as to insure their working in harmony. These studies tend to show that the sarcoplasmatic substance of striped muscle is analogous, if not identical, with the smooth muscle substance and is innervated by the vegetative nervous system, while the anisotropic disc system is the developmentally more recent portion and is innervated by the cerebro-spinal nervous system. This double innervation of the voluntary musculature makes it responsive to the activation of the autonomic apparatus through the vegetative nervous system serving in the way as an integrating factor used as a mechanism for pressing the cerebro-spinal neuro-muscular apparatus, with its much wider capacity for adjustment and response, into the service of the organism's instinctive demands and also providing a higher mechanism for their control and regulation. The instincts which have at their command the autonomic apparatus and its interoceptors bring about certain motor sets which are expressed in various forms of visceral and postural tonus. Hunger produces, at this level, the periodic contractions of the stomach which are registered in the psyche as a desire for food so long as they continue. The projicient apparatus, with the aid of its exteroceptors, can initiate responses calculated to expose the stomach receptors to neutralizing stimuli—food—and thus cause the craving to disappear.

It is in connection with this later developed nervous apparatus, the cerebro-spinal, that there comes into existence those later functions of the psyche to which are given such names as judgment, will, voluntary attention, and which are subserved by ideas in contradistinction to feelings which are the psychological reverberations belonging to activities more characteristic of lower levels. The cortex is thought of as the organ or rather group of organs through which these higher aspects of the mind gain material expression, if not exclusively then at least it is here that they get their most pronounced emphasis when the process of structuralization of these psychological functions is going forth.

From the point of view thus far developed the organism appears as a hierarchy of functions, each functional level controlling or inhibiting those that lay beneath and in turn being controlled or inhibited by those apove. This way of thinking is useful if not taken too literally and if at the same time it be realized that the various levels are spoken of as such and named only for pragmatic purposes and that they are by no means separated by well-defined boundaries. On the contrary each higher level represents the working out more accurately of the problems of the lower, a virtual unfolding and development of the lower levels. At the same time the analogy must not be limited to two dimensions because many functions go forth parallel to one another and represent different aspects of adjustment at practically the same level as for example the digestion of starches by both the salivary and pancreatic secretions.

In addition to all of these processes which make for higher development there are, in any complex organism, processes of an opposite nature also in evidence, namely processes of a degenerative nature which still further complicate the total picture. These processes now deserve some attention and following out the work of Child, already referred to, will be illustrated by the results of his experimentation. He has called the process *dedifferentiation* to distinguish it from the process of development which he terms differentiation.

Child is not altogether willing to admit with Lillie, Loeb, Driesch, Schultz and others that development in animals is a reversible process. Inasmuch, however, as the complexities which have been built up by the process that he calls differentiation can

be torn down by dedifferentiation he believes the process of development is regressible. Differentiation is progression, and dedifferentiation regression, but perhaps through stages very different from the stages of progression, therefore the term regressible is preferable to reversible. This matter of the reversibility of development will claim attention from time to time. It seems certain that Child is right in his position that development is not reversible and that therefore the term regressible is preferable. This question touches the whole problem of the law of recapitulation. The recapitulation hypothesis is extremely useful and suggestive, offering analogies which are very helpful in aiding the understanding of certain types of phenomena but it seems obvious that although it may be assumed that the human individual reproduces in the course of his development the various stages through which the race has progressed and that the imbecile boy correspondingly is arrested at a stage analogous to the level reached by certain savages still the imbecile boy is not a savage after all; he is very different from the savage and there are no savages comparable to him. The process of differentiation and development is not reversible even though useful analogies may be drawn to lower stages of development. The human embryo, for example, is never a fish even though it has gill slits, nor is it at all like a fish to the extent that it might be taken for one. The biologists have long ago called attention to various short-cut devices, omissions, and distortions of the historic stages that occur in the actual course of ontogenetic development.[11]

With this comment in mind on the theory of recapitulation and the non-reversibility of the developmental process it is useful for a comprehension of the organism as a whole to remember that along with the process of development which expresses itself in so many directions there goes hand in hand the process of degeneration, a partial process, so to speak, which is responsible, among other things, for the so-called rudimentary organs. As certain aspects of the dynamics of development have been discussed so now there will be discussed from the point of view of Child, the process of degeneration, or as he calls it, dedifferentiation. In passing it may be mentioned that the process of dedif-

[11] Marshall, A. M., Biological Lectures and Addresses.

ferentiation is the ambivalent opposite of the process of differentiation.

Differentiation is the process of growth, specialization, morphogenesis and leads to senescence and death, while the process of dedifferentiation is accompanied by physiological rejuvenescence. In other words, the process of growth, differentiation, specialization, or better the accumulation of function as structure, the structuralization of function, is accompanied by a gradual slowing down of activity, of the metabolic rate. This is well shown in the planarian worms. Starvation brings about a dedifferentiation in old worms. Now when these worms are fed again they show by all tests that they have become younger. In the same way Child shows by many examples that organic reproduction is preceded by dedifferentiation. For example, the formation of so-called adventitious buds may take place in *Begonia* from the epithelial cells of the leaf. The epithelial cells are highly differentiated, but before the buds are formed they lose their differentiated characters and resume an embryonic condition—they dedifferentiate. In more general terms, it would seem that reproduction must be preceded by dedifferentiation. The fertilized cell from which the organism is to develop, corresponding to the resting stage in monocellular organisms, is relatively undifferentiated. The process of differentiation starts only after the slate has been wiped clean. Life issues naturally in death and death quite as naturally in life. They are ambivalent opposites.

In the former chapter certain processes were dwelt on that make for the structure of the organism, namely, integration, structuralization and individuation. These processes were described, not because they are the only ones whch are active but because they are fundamental to such an understanding of the living organism as is attempted in this work and on the theory that it is not the static, anatomical aspects of the organism that need explaining but the dynamic and functional aspects.

In this chapter there have been discussed the dynamics of the organism setting forth the principles of the conflict and of ambivalency. Conflict, as it has been described and illustrated, it has been shown does not only occur at the psychological level, as it is ordinarily conceived to, but is a universal aspect of all

nature, more particularly, for present purposes, of life. It has been expresed in physics as the law of action and reaction which are equal and in opposite directions: in biology by the theorem of Le Chatelier: and in physiology by the canon of Frédéricq. In the realm of nervous reaction it is prominently in evidence in the activating and inhibiting mechanisms of the hormones and vegetative nervous apparatus. It has been shown also how, on the basis of this concept of the conflict it is logically necessary to consider the opposing forces as ambivalent opposites, in other words, that ambivalency is but another aspect of the conflict. The conflict occurs only because two forces are opposed to each other and these two forces are ambivalent opposites, they are but the factors of the conflict, its necessary conditions.

And finally it has been indicated how in the intricate complex of the organism, side by side with the tendencies that are making for progress, development, evolution, differentiation there can be recognized evidences of other factors at work making for dissolution, for dedifferentiation, and that these two sets of factors can advantageously also be considered as ambivalent opposites leading in directions which make ultimately for death or for life.

CHAPTER IV

The Stratification of the Organism

The Physiological Level—The Psychological Level—The Sociological Level

The Physiological Level.—Since the days of Hughlings Jackson it has been customary to speak of levels in connection with the functions of the nervous system. This tendency has been fixed and further developed by the work of Head in his studies, especially of the sensory pathways. The difficulty about the concept is that as a rule it is presented in a way altogether too formal, too static because set forth in terms of structure. For present purposes it is the underlying dynamic principle, rather than the structure, which is important. The important principle is that each level, to use a term which confusedly carries static implications, develops out of the one below into the one above; and that each controls the one below and is in turn controlled by the one above. The energetics of this growth and development is, expressed in the most general terms, by opposition, or by conflict, with the structuralization of the resultant pathways which are necessary to the organism. This is the process already described of laying down a dynamic gradient and evolution and development involve an ever increasing number and complexity of such gradients. Naturally it will be appreciated, as already indicated in discussing Child's work, how these gradients arrange themselves in a functional hierarchy under the final dominance of the head end. It is also quite as important to bear in mind that many functions may have equal value so far as their placement in such a hierarchy is concerned.

From the dynamic view-point, therefore, the organism may be thought of as presented by the environment with an infinite series of problems. The answer of the organism is the dynamic gradient which gradient tends to be laid down in structure in proportion to the strength and frequency of the stimulus which orig-

inally caused the outlining of its pathway. As gradients were developed the relation of the organism to the environment changed because it became a different sort of organism, new problems were presented, new gradients formed. Functionally, therefore, the organism may be thought of as a group of such gradients which have been developed in answer to its problems rather than anatomically as a group of organs.

The vegetative nervous apparatus is phylogenetically the oldest part of the nervous system and the ambivalent character of its reactions are clearly laid down in its structure. Its reactions, too, are closely bound up with the emotional aspects of mental life, in fact the affects are psychological reverberations of its activities. The motives for conduct are fundamentally feeling in character and represent cravings of the various autonomic segments. The cerebro-spinal or projicient nervous system and its associated voluntary apparatus are later developments which insure a more accurate type of response and greater certainty in exposing the appropriate receptors to stimuli adequate to neutralize the cravings. There is here a close analogy to the protopathic and epicritic mechanisms at the peripheral nerve level. Protopathic sensibility is more primitive. In the field of sensitivity to temperature it responds to extremes of temperature. Fish, for example, live within certain fairly definite bounds as to temperature. If a fish starts to swim in any given direction, say either towards colder or warmer waters, it is of no special value to it to be able to discriminate between small variations in temperature. It needs only such temperature reactions as will keep it out of water that is too warm or too cold for it to live in. Therefore when the water temperature has reached a certain degree of warmth or coolness that fact is appreciated and the fish turns back. This is the whole-or-nothing response that is so characteristic of the protopathic type of sensibility. It is only later in the course of development that the epicritic type of sensibility is developed which is capable of analyzing the environment much more accurately and, in the matter of temperature, for instance, discriminating between minor degrees. This finer analysis, of course, makes it possible for a much more accurate adaptive response on the part of the organism. Man, for instance, being acutely sensitive to temperature changes nevertheless can

live in any climatic extreme by adjusting his clothing to suit the conditions.

The characteristics of this older form of sensibility as set over against the later developed form show very well how much more effective the latter is as a basis for accurate adjustment on the basis of the exercise of a discriminating judgment as opposed to the earlier more primitive type the psychological correlate of which is feeling. These qualities are expressed by Head[1] as follows: the whole or nothing type of reaction: affective tone rather than sensory quality being the main result of the stimulus: extensity rather than intensity: absence of projection and relation of the stimulus to the body rather than to an external object. The first three of these are apparent in the illustration given of the fish. The fourth there will be occasion to refer to more particularly later. It is quite characteristic of the affective as opposed to the intellectual aspects of the psyche.

The later developed projicient system with its more acutely sensitive types of receptors capable of much more detailed and accurate analysis of the environment, is epicritic in function. It permits of greater nicety of adjustment through the activities of the voluntary neuro-muscular apparatus and through the service of the distance receptors, such as the eye and ear, tend to relate the organism to an environment of ever widening boundaries in both time and space. In contradistinction to the protopathic function the epicritic response is characterized by being graded within narrower limits of difference in degree of stimulus; by sensory quality rather than by affective tone: by intensity rather than extensity; and by projection, that is by relation of the stimulus to an external object, rather than to the body.

At this level, the sensory-motor level, there is also found evidences of that ambivalency which is so clearly in evidence at the vegetative nervous-system level. The innervation of the voluntary musculature, for example, is a double one in terms of any particular act. In flexing the forearm on the arm not only are the flexors contracted but the antagonists, the extensors, are relaxed and this relaxation of the extensors is quite as positive an act as the contraction of the flexors. Further, during rest the flexors and extensors are not flaccid but both sets of muscles are

[1] Personal communication.

in a constant state of moderate tension, a condition which obviously makes it easier to react more promptly in any direction called upon that would be the case if for each reaction the muscle had to be picked up from a state of absolute relaxation. The musculature is thus, as a result of being constantly in tension, in a position of maximum advantage to respond to any call made upon it.

Here, as elsewhere, the various levels must not be thought of as replacing each other in the sense that the higher supersedes the lower. It is a matter of control and all the levels may be acting at the same time. Peripheral sensitivity has qualities which are contributed by both the protopathic and the epicritic apparatus; the protopathic contributing more especially those qualities which are known as affective while the epicritic contribute those nicer discriminations upon which choice and judgment depend. Then, too, even in the functioning of such organs as the distance receptors both components in the resulting reactions are found, the affective and the epicritic and there must be assumed an underlying apparatus which corresponds to them. There is evidence for this in many instances. In the peripheral nerves, for example, there appear to be two kinds of nerve fibres one of which seems to be more like the vegetative type and the other more like the sensori-motor or cerebro-spinal type and it seems fair to assume that the former is protopathic in function, the latter epicritic. The same theory is probably true in other nerves such as the optic and it is known, aside from the fine distinctions of which the eye is capable, what important affective responses are conditioned by colors, in fact by sight in general.

The Psychological Level.—It must be apparent from the discussion up to this point that the psyche is not to be regarded as an epiphenomenon but as a higher form of functional integration developed in response to the demand of the constantly increasing complexities of the environment. Of course the increasing complexity of the environment has to be considered in a relative sense. As the organism develops ways of responding to the various aspects of the environment it itself becomes more complex and because it is more complex it contacts with the environment at more points and hence new demands are made upon it which in turn create still further development of the ways of

response. For every problem solved twenty new problems demand solution. The psyche is the last, the final answer, up to the present time at least, to these increasing demands and presents within itself and within the physical structure through which it finds expression, the cortex, almost infinite possibilities of adjustment and because almost infinite will undoubtedly serve as the medium through which for hundreds of thousands of years to come evolution will continue to find its expression as it has so served for hundreds of thousands of years in the past. For the purposes of this book, therefore, all metaphysical discussion as to the nature of mind will be avoided and no distinction in kind will be made between the mechanisms discovered at this level and the mechanisms of lower levels. All may be omitted in thinking of them as manifestations of energy as it works its way to the solution of the various problems presented on its path, to the overcoming or to the offering of resistance in the various situations upon which for the moment attention may be fixed.

The close analogy if not the homology which can be drawn between mechanisms at the psychological level and mechanisms at lower levels may with advantage be briefly illustrated. An individual, faced with a specific problem of adjustment, may succeed or he may fail. Short of complete failure he may substitute a less effective form of adjustment or he may have to develop a new adjustment to compensate him for an irretrievable loss. Complete failure would result in the death of the individual. At the psychological level this might be suicide: at the physiological level it might be a cardiac decompensation: at the chemical level it might be a failure to develop sufficient antibodies to counteract an infection. A substitution form of reaction at the psychological level might be the leading of a clerical life as a book-keeper because the demands of a large family made it impossible to accumulate enough money to take the necessary time and stand the necessary expense for equipment to lead the professional life of choice: at the physiological level it might be the training of the left arm to substitute for the right, lost by amputation: at the chemical, metabolism level it might be the necessity for living on war rations and substitute foods in place of a full diet. A compensatory reaction at the psychological level might be a resort to a religious life of contemplation as a compensation for the "slings

and arrows of outrageous fortune": at the physiological level the development of great strength in the arms as compensation for paralyzed legs: at the chemical level the over-secretion of one endocrine gland to make up for defect in another. These illustrations are sufficient to show the pragmatic advantages of not attempting a metaphysical separation of mind and body but considering only the organism as a whole, the various mechanisms at its disposal, and the problems of adjustment with which it is faced.

From this point of view it will be useful to survey, briefly, the development of the present day trends in psychology as illustrative of this tendency.

Psychology has quite naturally only lately come into its own as a department of the biological sciences inasmuch as it deals with the crowning achievement of biological evolution. Mind as the last step in organic evolution (in the sense only that it is the final group of mechanisms through which, for reasons already cited, evolution predominantly expresses itself) is necessarily the most complex and therefore comes in last for adequate scientific treatment. Leaving out of consideration the realm of metaphysical speculations psychology can be said to have come into existence only about a generation ago. The earliest approach to the problems of the mind were along the lines of what was then called physiological psychology. This departure quite naturally grew out of nervous physiology and in reality was only a refined physiology because it dealt little if at all with real psychological material but only with partial reactions of the individual as exhibited, for example, in the organs of special sense or the simpler neuro-muscular responses. It dealt with such questions, as the range and the qualities of sensation, least perceivable differences, reaction time and the simpler aspects of choice, judgment, attention. In interrogating the subject it dealt only with the obvious and most easily accessible conscious material.

Later in the course of development there arose the school of animal psychologists as a branch of the larger group of genetic psychologists. The genetic problem was appreciated but largely at a descriptive level and in the field of animal psychology the objective methods of the laboratory were modified to serve.

Growing out of these tendencies and developing more or less

with them and somewhat as a reaction against their extremes arose the school of behaviorists. This school saw the necessity of considering the total reaction formula of the individual as against the partial reaction formulae of the physiological psychologists and insisted upon an objective approach to the problems as a reaction against the extreme advocates of introspection and as a further development of the methods which had been found useful in the field of animal psychology. The tendency to discard the introspective data was a needless straining after perfection of scientific method as if the testimony of introspection did not disclose facts, albeit psychological facts, quite as real as any other facts, such as the facts of muscular contractions, visibility, etc.

With the rise of the psychoanalytic school it became evident that the psychological material could only be such by virtue of the fact that it dealt with the reactions of the individual as a whole, with the organism as a biological unity. In fact the distinction between psychology and physiology is based upon the fact that the former deals with whole, the latter with partial reactions. In the realm of physiology the function of the muscle is considered as muscle, of the sense organ as sense organ. The region of psychology is only entered when an attempt is made to answer such a question as "What is the man doing?"

In an adequate comprehension of the question "What is the man doing?" is incorporated an understanding of the whole extent and meaning of psychology as a biological discipline. From the discussion thus far it is evident that the organism is nothing if not dynamic. Every part of it is in constant motion and these motions are integrated mechanisms, or better, action-systems ever in process of adjustment and adaptation. As Emerson[2] puts it, "Life only avails, not the having lived. Power ceases in the instant of repose; it resides in the moment of transition from a past to a new state, in the shooting of the gulf, in the darting to an aim. This one fact the world hates; that the soul *becomes*."

The two concepts individual and environment, far from being mutually exclusive, can only be considered as the two elements of a dynamic relation, of a constant interplay of forces, in which their relative values are in a constant state of flux. From this

[2] Self-Reliance.

point of view each concept has value, not intrinsically, but only as an expression of the relation, and consciousness becomes an expression of this dynamic relation at the psychological level of reaction. In other words, consciousness can only be conceived as the psychological aspect of action, the conduct or behavior of the individual, or as Bergson[3] puts it: "Consciousness means virtual action."

From this point of view of consciousness as virtual action certain other reactions at the psychological level come in for a little different consideration than that usually accorded them. Thus perception, which is ordinarily regarded as in some way functioning to give us information about the environment, the individual meanwhile remaining passive, can be much better understood if it is conceived of as a preparation for action, yes, even as action itself in its early, tentative, trying-out stages, again in the sense of Bergson[4] when he says: "Our perceptions give us the plan of our eventual action on things," or in another place:[5] "The objects which surround my body reflect its possible action upon them." Memory, even, comes in for a like treatment so beautifully and inimitably expressed by Bergson in his Creative Evolution when he refers to the cerebral mechanism as being arranged so as to drive back into the unconscious almost the whole of the past "and to admit beyond the threshold only that which can cast light on the present situation."

Bergson therefore puts it[6] that "the fundamental law of psychical life is the orientation of consciousness towards action" and in his summing up of the situation says:[7] "Consider perception, to begin with. The body, by the place which at each moment it occupies in the universe, indicates the parts and the aspects of matter on which we can lay hold: our perception, which exactly measures our virtual action on things, thus limits itself to the objects which actually influence our organs and prepare our movements. Now let us turn to memory. The function of the body is not to store up recollections, but simply to choose, in order to bring back to distinct consciousness, by the real efficacy

[3] Matter and Memory.
[4] Creative Evolution.
[5] Matter and Memory.
[6] Matter and Memory.
[7] Matter and Memory.

thus conferred on it, the useful memory, that which may complete and illuminate the present situation with a view to ultimate action."

For Bergson then[8] matter becomes "the aggregate of images, and perception of matter these same images referred to the eventual action of one particular image, my body."

The organism, therefore, must be conceived as in action; and action involves the overcoming of resistance. Again the principle of ambivalency and in terms of the tendencies which lie back of the opposing forces, of ambitendency. Speaking in terms of the whole organism the answer to the question "What is the man doing?" must be an answer in terms that tell what he as a whole is endeavoring to bring to pass. Psychology has ceased to deal with partial reactions and can only reply by stating the psychological correlate of the total tendency, the tendency of the man as a whole: and to this tendency expressed psychologically the term *wish* is applied.

The wish then has become the unit of consciousness and has replaced the sensation of the older psychologists. As defined by Holt[9] it is a "motor attitude," "a course of action which some mechanism of the body is set to carry out," or in the words of Paton,[10] "a wish from the biological standpoint is nothing more or less than an indication of the 'motor set' determining the direction of all our activities." All this absolutely justifies the statement of Hall[11] when he says: "Epistemologically speaking, no one can know what he does not objectify."

With this conception of the psyche as the expression of the integrated action systems of the whole individual there may again be seen all of the mechanisms thus far considered in action.

Integration is in evidence when certain wishes are subordinated, for the time being at least, to the orderly direction of living to attain a well thought out goal. When, for example, time and effort is spent to get such an education as will fit the indi-

[8] Matter and Memory.

[9] Holt, E. B., The Freudian Wish. Pub. by Henry Holt and Co., New York, 1915.

[10] Paton, Stewart, Education in War and Peace. Pub. by Paul B. Hoeber, New York, 1920.

[11] Hall, G. Stanley, Jesus, the Christ, in the Light of Psychology. Pub. by Doubleday, Page and Co., New York, 1919.

vidual for the practice of medicine. Structuralization is in evidence when the individual has so become the creature of habit, of deeply channeled modes of response, that he continues to react according to a given pattern even though all sorts of disturbing factors tend to distract. Archimedes kept on at his problem even though the streets were filled with the soldiers of the conquering Roman legions. Individuation is more prominently in evidence at the psychological level than at any other. That unifying principle which streams through the dynamic mosaic of the human organism not only makes it different from a pile of bricks but as it manifests itself in the kaleidoscopic arrangements in hundreds of millions of individuals is just a little different in its end result in each. The differences at the lower levels can not be seen with the most powerful microscopes but at the higher levels, the psychological, where the conditions are much more complex and where each has worked out his solutions a little differently by the use of faculties which are possessed in common with all his fellows, they can at least be felt and often thus quite clearly apprehended. A friend is loved, not because he is like everybody else but because he is different. As for ambivalency and ambitendency, they are found at every turn, involved in every choice, every judgment, in the eternal "battle of motives" that goes on ceaselessly as man forges ahead and solves his problems by overcoming the obstacles to adaptation. And finally the total reaction formula is further complicated by the process of dedifferentiation which is constantly going on here and there as old ways of reacting have to be destroyed in order that new ways may be built up. At the chemical and physiological levels this is well illustrated by the gradual disappearance of the thymus gland as the child approaches adulthood. At the psychological level it is often in evidence at places in the career of an individual when he has to abandon some method of reacting which has worked fairly well up to a certain point, but then has to be replaced by something better. When, for example, a young man abandons a business career, sells his business, and starts going to school again to learn a profession.

All these mechanisms are daily in evidence in the life of the individual as it unfolds in the course of its development but they are given a much deeper significance from the viewpoint of

genetic psychology as they are seen on a larger scale as they operate in the development of the race. Inasmuch as the genetic point of view which is at present of so much interest has developed largely as a product of psychopathology it will be useful to review the leading facts in its development as they occur in the history of psychiatry for the past one hundred years.

Psychiatry, until recent years, has been almost wholly in the collection and description stage of development. In fact it is still, for the most part, in this stage. Eighteenth Century psychiatry grouped certain manifestations of mental illness together and gave them a name much after the manner of the naturalist before the theory of evolution. In fact the classification of mental diseases was fashioned after the dichotomous system of classification which has become so familiar in botany and zoology. If a patient had certain symptoms at a given time then he was said to have that mental disease to which these symptoms corresponded. In natural history, however, this method came a cropper in many instances when, for example, free swimming embryonic forms were described as separate species. This mistake was only remedied when the life history of the individual was studied and the embryonic form was then seen for what it really was, a stage in the development of the individual. Similarly, the practice of calling a disease process by a certain name, depending upon the symptoms that might be in evidence at a certain time, that is from the point of view of a cross section of the individual at that time, was equally descriptive and misleading.

Descriptive psychiatry reached its climax with the school of Kraepelin who, to correct the errors of his predecessors undertook a study of the disease process in longitudinal section, that is from the point of view of course and outcome. This followed more nearly the method of the naturalist following the advent of the theory of evolution. Even this method does not adequately take into account all of the factors involved. It is still too narrow a point of view from which to approach the problem. In fact it still smacks of that same medieval attitude of mind which has already been alluded to as being responsible for the consideration of mind as something separate and apart from the body only in this case it considers disease in that way.

Disease used to be considered, in fact still is, as something

that comes from without in some way and attacks the individual and in medieval thought was thought of as a sort of devil that took up its residence within the body. Disease is nothing of the sort. Disease is only a manifestation of that dynamic interplay between organism and environment when, for the time being at least, the balance is on the wrong side of the ledger, when the organism, for some reason, is losing out. It might be defined in the same words which Schiller uses[12] to define evil when he says, "Evil is that which resists the evolution of the world, and fights a losing battle against the tendencies of things. It owes its persistence simply to this, that the end is not yet, that the purpose of the world process is still being achieved, that the discordant elements are still being harmonized, and that hence what *is* cannot yet realize what *ought to be*." In other words, it is the process of dedifferentiation on a large scale. It can readily be understood how this is true, say of the changes incident to old age but it is equally true of less obvious situations such as the infections. Infection does not equally afflict everyone, some are relatively immune, others relatively susceptible. There is an underlying orientation of the organism toward the infectious agent, vaguely referred to as constitutional, which but exemplifies the fact that the result is the outcome of the dynamic interplay between organism and environment. Then when the study of pathology is approached it is found that there nothing is new. Disorder is found among the normal physiological processes but nothing new has been added to the situation. The only differences are quantitative, differences of more or less and not of kind. Pathology is only the study of physiology modified by differences of emphasis here and there.

Disease is, therefore, not an extraneous something like a medieval devil, but, a function of the dynamic interplay of organism and environment and the study of disease alone, as disease, can never give a complete account of the reasons for the symptoms. This is more true, if degrees can be properly spoken of at all, in the realm of mind than elsewhere because, as will be seen more fully later, the environment at this level, the social environment, plays a predominant rôle.

[12] Schiller, F. C. S., Riddles of the Sphinx. A Study in the Philosophy of Humanism. Pub. by the Macmillan Co., Lt., London, 1912.

Therefore the next step brought the period of interpretative psychiatry, the period upon which it is only now just entering. From this point of view the disease, in this case the mental disease, can only be understood when it is appreciated how it has developed as the result of certain stresses applied to a certain personality make-up, and the symptoms then appear as the result of the stress acting upon this make-up, and express in symbolic form the way in which the personality, more particularly at its weak points, has striven to meet the situation. Psychiatry, therefore, must busy itself, not with the study of a longitudinal section of the disease process, its course and outcome, but with a longitudinal section of the individual which shows how a given type of personality make-up has reacted to a given type of stress, how it has brought its assets and liabilities to the problem in hand, how it is dealing with that problem, and how finally it solves it.

This is the type of psychology which is so much in evidence now-a-days and has contributed so much to the practical psychiatrist, social worker, and vocational psychologist. A scientific psychiatry, based upon a genetic psychology, must, however, delve much deeper in its search for explanations. As already indicated the head end is quite as old in historical development as the rest of the organism. The psyche is not something which has been added at a given point in the course of evolution but, in its present form is the elaboration and final expression of the supremacy of the head end. Therefore the history of the psyche is not confined to the life time of the individual but stretches back over the whole period of organic evolution just as does the history of the body. Just as there can be no adequate understanding of the body except there has been traced its development to its present estate along the path of evolution so it is with the mind. From this point of view child psychology would be comparable to embryology; comparative psychology to comparative anatomy, and paleopsychology to paleontology. The immediate explanation of the adult psyche is found by tracing its development from the child psyche; analogies are seen between the psychological reactions of different peoples that may look very different on the surface: and evidences are found of archaic nodes of response that are quite like the reactions of primitive peoples. A brief illustration of these features will make the matter clear. A man who loses his temper and breaks the furniture is said to act in a child-

ish manner because children act towards the elements of their environment as though they were personalities. But this very tendency to personify the inanimate elements of the environment is one of the most outstanding characteristics of savages so that the conduct of the angry man has homologies not only in the reactions of the child but also in those of the savage.

The homologies which adult action has with childish and primitive forms of reaction can be understood if the same attitude of mind is assumed toward the psyche that has come to be assumed towards the body. This idea has already been set forth in the description of the laying down of functional gradients. In the original unicellular organism the functions of ingestion, digestion, and egestion were pretty well shared by the whole protoplasmic mass. As the situation became more complex there were built up certain organs which served those various functions or parts of those functions more accurately. Thus the gastro-intestinal tract was the solution of the organism, laid down in structure, of the function of ingestion; the cardio-vascular organs the structuralized solution of circulation; the kidney the solution of certain problems of egestion; the liver the solution of the function of sugar metabolism, etc., etc. In quite the same way the instincts may be considered as organs which have evolved as solutions of the problems which confronted the organism at psychological levels. As the organism became more complex the reverberations of its needs, as they appeared at the psychological level, were organized into instincts which served to activate the whole organism to obtain the necessary satisfactions. Thus the hunger instinct and the sex instinct are specific activities of the organism which originally responded to the need for food and reproduction by its whole body, the inclusion of food particles by the cell, and reproduction by division. As the various functions have become fixed in structure, that is laid down in different ways of response, chemical, reflex, instinctive they have been left behind as living issues, so that the energy of the organism may be made available for new problems. This is the way in which the unconscious is formed. The unconscious represents the historical past and contains those solutions which have become so thoroughly organized as to form stepping stones for further progress.[18]

[18] White, Wm. A., The Unconscious. The Psychoanalytic Review, Vol. II, No. 1, January, 1915.

It is in this region of the unconscious that we find the structuralized functions of the psyche. Those solutions which have been reached by the race and therefore are common to all individuals just as the bodily organs, liver, spleen, kidneys, etc., are common to all individuals. Jung[14] designates this common material as it expresses itself in action as instincts and as it conditions intuition and apprehension as archetypes of apprehension. The totality of instincts and archetypes of apprehension he calls the "collective unconscious."

This collective unconscious is in a sense the common possession of mankind, or at least, people of the same degree of cultural development would have the same collective background. This collective unconscious has been spoken of as a racial memory and in a sense of course it is, but to use the word memory here, it seems, may well imply a misapprehension. It has been thought of as memory because symbols are found in the unconscious that are the same as those which are found in culturally more primitive people and the same as those that are known from history to have been prevalent, at least in the folk-lore and legends, in past ages. The term memory, as ordinarily used, implies the revival of a past experience of the individual but used in this sense would apply to the past experiences of the race. It seems, therefore, more helpful to think of the whole matter somewhat differently although perhaps it may not be quite accurate to hold unequivocally that the use of the term memory, in this broader sense, is unwarranted. From this point of view it should not be said that memory extends back, say one hundred thousand years, but that when reality is dealt with by the same methods which were used one hundred thousand years ago, that is, when it is dealt with with the same mechanistic equipment, mental machinery, so to speak, the same results are reached. This way of looking at the matter touches the whole question of the stratification of the organism as that expression is used. When reality is dealt with with a fully developed consciousness one result is obtained, when an attempt to deal with it is made by lower, more infantile, more primitive, more archaic mechanisms necessarily there is a different result. It is as if in printing, the paper—reality—was fed

[14] Jung, C. G., Instinct and the Unconscious. The British Journal of Psychology. Vol. X, Part I, November, 1919.

to a modern Hoe printing press and the final result was a sixteen page newspaper accurately folded and ready for the news-stands; or the paper is fed to a simple custom press and the result is a single page circular. The custom press could not do the work of the more complicated machine, unless it could evolve into one, as of course it has, in a sense; while if the more complicated machine undertakes the simple task it does so only by eliminating its more highly complex mechanisms and so using only those parts that are comparable to the simpler machine. The illustration is perhaps a crude one, but the analogy is not simple and the attempt to illustrate it at least shows that. The Hoe press turning out a one page circular is not operating just like the simpler machine and in so functioning is not strictly analogous to it any more than, as already indicated, a single cell of a metazoon is analogous to a monocellular organism: the forty year old imbecile of the psychological age of six is not like the six year old child perhaps in any other respect than his capacity to test up to the same level. The analogy, therefore, is after all not so remote as it seemed at first, for the complicating elements are seen elsewhere as well. Another example may make the matter still clearer. At a certain stage in development the human embryo has gill slits. In some cases these gill slits persist after birth and exist as pathological anomalies of structure. Nevertheless the organism as a whole is not at all fishlike nor do these slits function as they do in a fish. They simply persist as defects of development and impair the full functional activity of the organism as a whole. While in a certain sense they may be thought of as memories of a previous type of structure still the general result is quite different from the result of memory as ordinarily thought of. In order that the analogy may be correct the limits of the individual as ordinarily conceived must be discarded and in his place must be put the concept of the race. If it is appreciated that the individual is in fact a part of a larger whole, the race, but only a point, so to speak, in the organic phylum where for the time being the living forces are nucleated, then the analogy is useful, perhaps it is more than an analogy, perhaps it is an homology.

Such illustrations, however, do indicate that the oragnism carries within itself distinct evidences of the pathway of development along which it has come, of the various stages of develop-

ment through which it has passed. The law of recapitulation, namely that ontogeny epitomizes philogeny, is true for the psyche as well as for the body, although, as indicated, there are evidences of short cuts, variations, and complications on the way. Notwithstanding the intricacy of the problem it should be possible, if the facts were available in sufficient number, to classify the psychological types of reaction from this point of view, to arrange them in a hierarchy, in an order from the highest to the lowest, and such a classification should be possible from both the ontogenetic and the philogenetic standpoints, and finally the two classifications should show homologies at the several stages. It has already been indicated how the psychic reactions may be classified as conscious and unconscious. Grasset[15] has used this as a basis and speaks of two psychisms, the superior psychism which includes the voluntary and conscious activities and the inferior psychism which includes the automatic and unconscious activities.

- I. The function of the real
  - action
    - effective action on reality
      - social
      - physical
    - new action with feeling
      - of unity
      - of liberty
  - attention
    - perception with feeling of reality
    - certitude, belief
    - perception of new objects
    - perception of the person
      - with feeling of reality
      - with feeling of unity
  - presentation, perception and the utilization of the present
- II. Disinterested activity
  - habitual actions
  - action without feeling
    - of the present
    - of unity
    - of liberty
  - perception without the feeling of certainty and with a vague feeling of the present
- III. The functions of images
  - purely representative memory
  - imagination
  - abstract reason
  - revery
- IV. The visceral emotional reactions
  - systematic
  - diffuse
- V. Useless muscular movements
  - systematic
  - diffuse

[15] Grasset, Joseph, The Semi-Insane and the Semi-Responsible. Funk & Wagnalls Co., New York and London, 1907.

Janet[16] has attempted such a classification in somewhat more detail. His classification is shown in the table on the preceding page. Janet came at this classification from a study of the neuroses in which he saw the activity of the lower levels more or less uncontrolled by adequately developed higher levels.

From this standpoint, namely, the psychopathological, the psychoanalytic school has come to a classification of the developmental stages of the individual, more especially as they relate to his creative energies, that is, to his love tendencies. This classification is at present still very general and needs to be filled in in much more detail. It is based upon the progressive tendency in the individual to more and more objectify his love interests and the classification is therefore a classification of the nature of the love objects which appear at the different stages of development. At first the individual is auto-erotic, that is, he takes himself as love object: he then seeks love objects outside himself but still those most like himself, this includes the narcissistic and homosexual types of objects of attraction: then he becomes distinctly heterosexual, that is, he is able to attain a love object, not like himself, but of the opposite sex. This classification can be seen to be a progress in the direction of the socialization of the instincts and with reference to the particular tendencies[17] the socialization may proceed to such a degree of sublimation that the love object is, to all intents and purposes at least desexualized. This is what is seen, for example, in the more abstract interests of the scientist. There are still lower and higher stages. Lower than the auto-erotic stage of infancy is the stage best exemplified by the fœtus in utero in which, because it has no unsatisfied desires, even its breathing, eating and all the rest being done for it by the mother, can be said to be in a state of unconditioned omnipotence. The higher stages include the most abstract results of social integration and express themselves in such functions as civic duty, good citizenship, public benefactions, etc.

The homologies as between the individual development of the psyche and the racial development are even more difficult to

[16] Janet, Pierre, Les Obsessions et La Psychasthénie, Vol. I. Félix Alcan, Paris, 1903. Névroses et Idées Fixes, Félix Alcan. Paris, 1898, Les Névroses, E. Flammarion, Paris, 1909.

[17] Freud, S., Three Contributions to the Theory of Sex. Nervous and Mental Disease Monograph Series, No. 7.

draw. Rather vaguely a period of animism may be defined during which the child tends to personify the inanimate objects of its environment in similar fashion to savages. There is also a period of great interest in animals which corresponds to the important part they have played in the history of the race. Similarly there are distinct evidences of the use of magic. In fact if any aspect of the developing psyche be studied it will be found to present evidences of passing through stages quite similar in their manifestations to the phenomena which have become familiar in the study of savages. To correlate all the evidence, however, and arrange it in a hierarchy would be an extremely difficult problem which, so far has not been at all satisfactorily accomplished. Only the very broad outlines can be indicated.

Of course, too, it must always be remembered that the advance is not simply a linear advance: that it cannot be represented in two dimensions only but that it is three dimensional, that many processes run parallel, some of which occupy the same level in the hierarchy of functions and some of which do not, and that progress in any one of these directions is often interrupted by degeneration—dedifferentiation—limited or extensive as the case may be.

Finally to come back to the relations of ontogeny and phylogeny. The statement, as already indicated, that ontogeny repeats phylogeny is, to say the least, misleading. That would mean that there was an exact correspondence between a given stage in individual development and a given stage in racial development. This of ocurse is not so. The imbecile forty years of age but of the psychological age of six years does not correspond to the child of six any more than does the child of six correspond to a savage.

To come back to the example of the gill arches referred to before. Occasionally persons are born with persistent gill slits but no one would know that that is what they were if their developmental history had not been traced. The fact that these are at one stage of development gill arches does not mean that then the human animal is a fish or even that these structures are headed towards fulfilling the function of supporting gills. In the evolution of the vertebrates gills have given way to lungs as organs which better solve the problem of the utilization of oxygen. In man, however, there still persists embryonic traces of

the primitive splanchnocranium in the form of three pairs of gill arches which although they disappear from view, are not entirely lost for certain parts of the adult skeleton are directly derived from them. These are certain parts of the hyoid apparatus and the thyroid cartilage.[18] It is true that the thyroid cartilage could not be fully understood without this light shed from its developmental history. Just how much is to be credited to ontogeny in its explanation and how much to phylogeny is, however, a different question. The two processes, if processes they can be called, are so inextricably intertwined. It seems that a useful attitude towards the whole situation can be attained if it is realized that in the development of man, for example, the creative energy has to utilize what it finds, in this case gill slits. If the end were a fish the utilization of this material would be in one way, but the end is a man so it has to be very differently used. Just so much of the past as can be used for the present problem is pressed into service, and the past so used is remoulded to serve its new end.

The reason for this deflection to discuss the recapitulation theory is because it is of very great importance for thinking clearly in discussing the analogies between certain ways of thinking, particularly as seen emphasized in the realm of psychopathology, and similar ways of thinking as seen in children and savages. Archaic modes of reaction are spoken of rather loosely because it is not really known just what is meant by archaic, just what sort of reactions should be included in this term. It must be clear from the argument thus far that to merely go back in the history of the individual far enough is by no means to necessarily insure an archaic type of reaction in the sense of a reaction older in form than the individual. Similarly no matter to how recent a date in the history of the individual a type of reaction belongs it cannot be free from the influence of its racial background. Every reaction must contain elements that can only be understood by knowning the phylogenetic history back of them: while every reaction must also contain elements which could only have been contributed by the individual.

If this argument is correct the word archaic would have a

[18] Walter, H. E., The Human Skeleton. An Interpretation. Pub. by The Macmillan Company, New York, 1918.

fairly definite meaning only its application in a particular instance might be difficult. To come back again to the gill slits. Gill slits which persisted in the adult human would be archaic because they would represent a bit of the past which it had not been possible to assimilate and make a part of the new plan, a bit of the past which, so to speak, had become hopelessly side-tracked, its forces unavailable for further progress. If the argument is right it may be carried over into the psychological level and an archaic reaction must be considered prognostically most serious although regression as such, need not be, no matter how far back it goes. The ontogentic content of a regressive psychosis is material contributed by the past experiences of the individual and may be brought under his control but the phylogenetic content transcends the experiences of the individual, it dates its origin long before his existence and has never been and very possibly never can be, at least fully, under his control.

To come back to the question of the hierarchy of psychological functions. Both the schemes of Grasset and Janet are essentially ontogenetic in principle. In fact very little is known of the phylogenesis of the psyche. From this point of view such ontogenetic stratifications as autoeroticism, narcissism, homosexuality, heterosexual object love; such developmental periods in the history of thought as the animistic, religious, and scientific, paralleled perhaps roughly by the pathological phenomena of hysteria, compulsion neurosis and paranoia, as caricatures respectively of artistic creation, religion and philosophy; are but the larger sub-divisions, the main epochs, each one of which needs to be split up as a result of further investigation.[19] Each one of these stages as well as such prominent and characteristic aspects of psychic life as have evident analogies with the savage mind such as the all-powerfulness of thought, magic, anthropomorphism, need to be studied as to both their ontogenetic and their phylogenetic components as has been shown by the illustration of the gill-arches. When this is done, and in addition each one of the various strata can be identified by its characteristic psychological fossils, then there will begin to be a basis upon which can be formulated a psychopathology which will give some indication through the symptoms of the seriousness of the illness and the possibilities for recovery.

[19] Freud, S., Totem and Taboo. New York, Moffat, Yard & Co., 1919.

The difficulty of getting at the phylogenesis of the psyche by any other means than by psychoanalysis, and that of course means largely by implication and hypothesis, the difficulty of an objective approach can be appreciated when it is realized that the historical period covers only about one per cent. of man's racial history.[20] Thus the earliest human race, the Trinil race dates

SUCCESSION OF HUMAN INDUSTRIES AND CULTURES

V. Later Iron Age (La Tène Culture)	Europe, 500 B.C. to Roman Times	
IV. Earlier Iron Age	Europe, 1000–500 B.C.	
(Hallstatt Culture)	Orient, 1800–1000	
III. Bronze Age	Europe, about 2000–1000 Orient, about 4000–1800	
II. New Stone Age, Neolithic		
3. Late Neolithic and Copper Age (Transition Period)	Europe, about 3000–2000	
2. Typical Neolithic Age (Robenhausian, Swiss Lake-Dwellers)	Europe, about 7000	
1. Early Neolithic Stages (Campignian Culture)	Europe	
I. Old Stone Age, Palæolithic		
Upper Palæolithic	Europe	
8. Azilian-Tardenoisian		Reindeer, Shelter and Cave Period
7. Magdalenian (close of Post-glacial time)		about 12,000
6. Solutrean		about 16,000
5. Aurignacian (beginning of Post-glacial time)		
Lower Palæolithic		
4. Mousterian (fourth Glacial time)		about 40,000
3. Acheulean (transition to Shelters)		River-Drift and Terrace-Period
2. Chellean		about 100,000
1. Pre-Chellean (Mesvinian)		

Eolithic.

back about five hundred thousand years. This Trinil race (Pithecanthropus erectus) was followed by the Heidelberg race (Homo

[20] Osborn, H. F., Men of the Old Stone Age, their Environment, Life and Art. New York, Charles Scribner's Sons, 1916.

heidelbergensis); then the Piltdown race, the "dawn man" (Eoanthropus), antiquity estimated at from one hundred to three hundred thousand years; then the Neanderthal race (Homo neanderthalensis), antiquity estimated as between twenty-five and forty thousand years. This brings man to upper paleolithic times with the Brünn, Grimaldi, Crô-Magnon, and Ofnet races, and to recent Homo Sapiens. Only about the last one hundred thousand years of this period has offered material for the study of the cultural development of man. The succession of human cultures is shown in the above table taken from Osborn.[21]

These cultural levels are of course only imperfectly known, largely from remains of dwellings, implements, and art. It is stimulating, however, to note that some of the art, which has been referred to the upper paleolithic, very closely resembles products of the highly individualistic movements in modern art. Such a close resemblance indicates the possibilities of psychoanalysis for uncovering some of these low cultural levels. At least the immensity of the field for further investigation along these lines is sufficiently indicated.

The Sociological Level.—Just as it has been already indicated that the multicellular organism is not a mere aggregation of cells so society is not a mere aggregation of individuals. Society is made up of the various individuals plus the relations that maintain between them. In other words it is an organism, integrated and structuralized just as are other organisms.

A comment upon the general subject of levels of integration has been reserved for this place because it can be more forcefully illustrated with the material at this level and because the illustration is so much more pertinent to the object of this book. The smallest social group can be thought of as composed of two individuals A and B and the relation which maintains between them. Now it may be assumed for the purposes of this illustration that that relation is one of mutual friendship. Now this friendship is a higher integration, it is a social integration and as such cannot be fully explained by splitting it up into its component parts any more than the organism can be fully explained by its component cells. The organism as a whole is something more than the sum of its parts, so friendship is something more than that which A

[21] Op. cit.

contributes plus what B contributes. That which A and B contribute are correlates but their relation is something more than their sum. What is meant by this has already been sufficiently illustrated in the discussion of the unity of the organism (Chapter II). Society, from this point of view, is also a unity. Social facts cannot be adequately explained by psychological facts; psychological facts cannot be adequately explained by physiological facts; physiological facts cannot be adequately explained by chemical facts. The facts at any level of integration need to be explained, and can only be fully explained, in terms of that level. To attempt the reduction of complex situations to terms of less complex situations without a due appreciation of this principle leads to much loose thinking and has been responsible for many false assumptions, such for example as the theory that consciousness is secreted by the cortex.

Because man is a member of the social group he has to fit himself into the scheme of that group and go along with its tendencies just as does the cell have to adjust itself and fit into the general tendencies of the organism. In fact the individual man is part and parcel of that higher integration, society, and he can only be understood when it is realized that he is an organic part of that larger whole, inextricably identified with it, as necessary to it as it is to him. It is understandable, therefore, from the study of the individual man that certain of his aspects can only be understood when his relations to this larger whole are taken into consideration. Man can only be understood as a social animal and therefore, the social organism must be understood in order to appreciate adequately the part individual man plays in it. This is an ambitious scheme but certain aspects of the situation will repay consideration in this connection.

From this point of view of society as a higher form of organism certain results flow in explanation of the individual's psychology. Just as the cells are agencies for carrying out the larger plan of the organism as a whole so the individual humans are agencies for carrying out the larger plan of society. What are these larger plans? In general it is perfectly obvious that they must include self-preservation and creative expansion, growth and development. The individual must either fit into or fit out of this general scheme, but how? The answer is found when in-

quiry is made into the standards he sets himself for conduct. His conduct, when it in any way touches the welfare of the state, is right if it furthers those interests, wrong if it is opposed to them. And the significant fact about this rightness and wrongness of conduct is that it is not merely a matter of the verdict of *others* but that somehow *the actor himself* feels his conduct to be right or wrong as the case may be.

This way of looking at society as a higher state of integration than exists in any of its individual components seems to offer the only means of explaining many facts of man's so-called moral nature. Social tradition is passed on from generation to generation just as truly as the more obvious physical characteristics are transmitted through the medium of the germ plasm, and their practical working is as effectively insured by being incorporated as inherent, affective tendencies in the individual. Only in this way can be explained the relatively slight effect which severity of punishment apparently has upon the incidence of anti-social acts. Either individuals have attained such a high point of social integration that the fear of punishment has little or no effect upon their conduct, they will be moral anyway, or they have fallen so far short in their social integration that the fear of punishment cannot have any effect, they are controlled by lower instincts and will be immoral in their conduct anyway. This is especially well illustrated in certain forms of auto-erotic sexual indulgences. The unfortunate victims of habits of this character are characteristically asocial types, unhappy and depressed, frequently drift into severe psychoses and may become actively suicidal though there is no question of discovery or punishment involved. They have a profound sense of inferiority as compared with others which makes their lives intolerable at times, although they may have practically no intellectual orientation towards the real nature of their difficulties. Similarly with such crimes as homicide there is no evidence that capital punishment has any effect in lessening the nuumber of murders in a given community.[22]

The individual is so oriented towards those acts which, in their general tendency are destructive to the herd that he feels instinctively that they are wrong and if impelled to commit such acts feels, also instinctively, a sense of personal guilt. The indi-

[22] Bye, Raymond T.: Capital Punishment in the United States. University of Pennsylvania Thesis.

vidual is truly an agency through which the destinies of the more highly integrated organism, society, works out its expression.

The degree to which the individual is subjected to the needs of the herd is seen in high relief at times of war when he is called upon to die that the State may live. The universality with which this demand is met is the strongest possible proof of this thesis.

Here, at the social level, the final integration which is attained is the result of conflict, the higher integration being the expression of the solution of the conflict in accordance with the Hegelian formula, thesis, antithesis, synthesis. The solution therefore derives from the elements of the conflict and expresses the opposing tendencies. It is to be expected, therefore, that there will be found at the social level the expression of the needs of the individual as they are finally translated into the higher social integrations. That this is so is obvious from even a casual survey of the functions of social institutions. To illustrate, medicine stands for man's desire for physical health, it represents his effort at satisfying his desire for power through strength of body and his desire to evade death and to be immortal: the church correspondingly is a result of his efforts towards spiritual immortality: the various systems of insurance of life and property are but concrete embodiments of his search for safety: the family is his solution of his love motive: the law and the military organization are vicarious agencies for satisfying his aggressive instincts: educational institutions increase his sense of power at the psychological level: art permits expression in other ways, and so on, the illustrations might be indefinitely elaborated.

Similarly it can be seen how various of the sciences minister to his needs and give them expression. The sciences of archaeology, ethnology, anthropology, philology, sociology and history are all evidences of man's interest in himself, his past, his structure, his methods of expression. They represent avenues through which his auto-erotism may find adequate sublimations just as the social institutions before mentioned afford avenues for the socialization and development of his self-preservation and his love instincts.

All of these social institutions and scientific disciplines do more, however, than minister to a single trend. In each instance they afford a means of expression for both the self-preservation and the race-preservation instincts, for both the individualistic

and the social aims. To the extent that the study of medicine helps a man to that knowledge which he can use to preserve his own health and gives him that grasp on the laws of health which makes him feel sure of his way, it reinforces his feeling of safety and gives expression to his safety motive for conduct. To the extent that he is able to contribute something to the sum total of medical knowledge, and to the extent that he is able to help others in a constructive way he is finding expression for his race-preservative instinct, his creative energy. Both tendencies may find expression at these social levels of integration and their opposing aspects be harmoniously related to a common purpose. This represents the true solution of a conflict by the development of a higher integration and suffices until that higher integration itself develops new problems which in time must reach a solution by the same mechanisms but on a still higher plane. Thus does progress take place onward and upward by the short steps of necessity. As Schiller aptly puts it:[23] "both the complex structure of higher societies and their elaborate material machinery are essentially contrivances for liberating force, and enabling them to produce a higher intelligence, which shall be competent to deal with higher problems."

The mechanisms at the social level are thus seen to be homologous with the mechanisms which have been described at the other levels. Progressive integrations are the results of successive conflicts and solutions: the *conflict* is between tendencies of opposite sign (*ambitendency*): solutions are laid down in tradition, customs, social institutions (*structuralization*): the higher societies are most developed, most complex, most individualized (*individuation*).

And finally in the same sense that the development of the individual epitomizes the evolution of the whole biological series which has finally culminated in him so the development of society does likewise. And just, as in the individual are found evidences of degeneration and of vestigial organs, the same is true of society. A decaying tradition involves quite the same principle of dedifferentiation as the gradual reduction and disappearance of an organ or the disappearance of a species in the course of organic evolution.

[23] Schiller, F. C. S., Riddle of the Sphinx. A Study in the Philosophy of Humanism. Macmillan Co., Ltd., London, 1912.

CHAPTER V

The Region of Psychopathology

Pathology is often erroneosuly though of as being essentially a scientific discipline which deals with phenomena essentially different from those dealt with in the study of the normal. It has come to be recognized, however, that normal can mean nothing other than usual and that the processes of disease are no different in kind from those observed in health. The only differences are differences of degree. The chemistry of a disordered state of metabolism is chemistry nevertheless: the laws which govern the combining powers of the elements are not changed, the only change is that under altered conditions the end results differ. Because a man falls off a ten story building is no reason for considering that the law of gravity has in some way become changed, quite the contrary, it operates in exactly the same way only in this instance the result is different from that usually observed and recorded.

It is quite the same in the realm of psychopathology. The laws which govern the mechanisms at the psychological level are not abrogated or changed, only operating under different conditions the end result is not a normal, that is not a usual result. And by this is meant that the result does not make for adjustment and adaptation but for a degree of failure, great or small, in these respects. The questions which now present themselves are: What is the field in which this failure manifests itself? At what level of integration does failure become evident?

It must be borne in mind before attempting to answer these questions that the levels of integration thus far indicated are not to be considered as hard and fast, not as definite in the sense of each being clear cut and distinct from the others. Rather the whole process of development is to be thought of as continuous and the several levels only as artificially erected distinctions to serve pragmatic ends. They are devices only for assisting thinking about the phenomena involved, for aiding in classifying, in

arranging knowledge for practical purposes. With this caution it is interesting to recall certain historical facts bearing upon the present conception of what constitutes the matter of psychopathology.

The word psychopathology is comparatively of recent use. It is but a short time ago, for practical purposes, little more than a generation or two, that the entire field of mental pathology was generally thought of as included in the consideration of the insane. Then too insanity was a very obvious, a very marked condition. Insane people were crazy and had to be confined as a matter of public safety. It was the social aspect of the situation that commanded attention. There was little regard for the individual insane person. The main thing was to protect society, consideration for him was only incidental. Later in the story it came to be appreciated that under this system of handling the problem the patient was often, in fact quite generally abused. The whole system which left him, as an individual, out of consideration, was essentially repressive and the patient had little chance to be heard or to have his real welfare looked after in any systematic or constructive way. Later developments have progressively more and more considered the individual's interests and the insane asylum has gradually become a hospital. Contemporaneous with this change in the treatment of the so-called "insane"[1] the field of psychopathology was enlarged to include a considerable group of minor psychoses and neuroses which were more or less obviously mental problems but which were not of such character or severity as to constitute a social menace and the victims of which therefore did not endanger the public safety and therefore did not have to be confined. With this beginning enlargement of the group which was recognized as presenting problems of a psychopathological nature the attitude towards mental problems generally became more comprehending and mental problems of an increasingly subtle character came to be included and so the cruder concept of insanity came to be discarded or largely modified. The emphasis gradually shifted from society to the individual. Again the pendulum is seen to swing between opposite extremes, in this case between the individual and

[1] For a discussion of the use of the word "insane" see my "Principles of Mental Hygiene." The Macmillan Co., New York, 1917.

society. The interests of the individual and society frequently run at cross purposes. When they have done so in the past, and still, for that matter, society comes in for first consideration. They are in this situation, however, the opposite factors in a dynamic relationship and the important point that this reference to insanity brings out is that it is just the *individual-society relation* which is involved. It is because psychopathology deals with this region, the borderland where the individual and the social group contact, that so much emphasis has heretofore been placed upon the social aspects of mental disease. There is still much said and written about what constitutes legal insanity distinct from mental disease as defined by the psychiatrist. There is the constant battle between the legal representatives of the State and of the accused to throw the question of mental disease either out of consideration by the State through the use of the legal concept of insanity or to compel the State to its acceptance by a proof of the existence of mental illness and forcing its legal recognition. The reasons for this constant conflict of opinion are perfectly evident when it is realized that mental disease occupies this intermediary position between individual and society.

That mental disease does in fact occupy this borderland will be evident from a brief consideration of some of its symptomatology. The recent advances in psychopathology have shown that the symptoms of mental disease are largely the results of efforts to gain expression for certain tendencies which are not acceptable to the individual, which he often is not even willing to recognize that he harbors. Because they are not recognized or at least not permitted to come to open expression in action they break out, when the pressure from the pent up energies is sufficient, into all sorts of by-ways of expression. Even so, however, they are only able to get into the open, as it were, by donning various disguises so that they are not recognized for the disreputable characters they are thought to be by the host. This disguise is the symbolism which permits these inhabitants of the dark places to evade the moral censorship of the individual and play their part.

All this is quite familiar to those acquainted with the psychoanalytic point of view. But what is the standard of censorship which the unwelcome desires cannot pass? In any case the ob-

jection to them is based upon their lack of social value, or more specifically upon their actual social danger.[2] In any case that a tendency is denied expression it is because it is laboring under the ban of a social taboo. The various stages in psycho-sexual development which have already been referred to, such as the autoerotic, the narcissistic, and the homosexual are all normal at certain periods of childhood and do not activate any of the social taboos against them. But if, for any reason, these tendencies are not woven into the warp and woof of an advancing character development, if the individual tends to remain fixed at these levels, then the social taboos begin to be operative. Narcissistic tenddencies in a child are smiled at indulgently, in the adult they become distinctly bad form at least, sometimes intolerable. A simple example is at once comprehensible. A baby soils its diapers, that is to be expected, no one would think of punishing the baby. But let an adult do the same thing and the reaction is quite different. Disgust and abhorrence push the offender, in the feeling of his associates, quite outside the group. It is inconceivable that any grown man should act so. No one can find anything within themselves which corresponds to such a tendency and so the offender seems different from the rest of people, he is antisocial. This particular delinquency is quite common among seriously ill mental patients and is one of the causes, because of the reasons just given, why it is difficult to get persons who will properly care for such patients and also why such care-takers so often are guilty of abusing patients. They not infrequently punish the patient cruelly for such conduct in response to the feelings of disgust which it causes in them.

Take a few of the well known symptoms. The feeling of inferiority of the neurotic is a feeling of not being on a par with others, he is unable to meet his problems with the same efficiency that he observes in others: the feeling of exaltation, on the contrary, is a feeling of superiority to others and when it takes the form of a delusion of great wealth money must be recognized as a symbol of power which has value only in a society, it would be of no use to the lone individual on a desert isle, wealth makes its possessor free from the limitations imposed by the social group: the delusion of persecution is a cover symptom for an unsubli-

[2] This is why "insanity" is a matter for the courts.

mated homosexuality which is destructive to the interests of the herd: the regressive infantile reactions are reactions away from the demands of reality as represented by society: various delusions such as result, for instance, in the invention of perpetual motion machines, are cover symptoms for impotency, as is also the delusion of marital infidelity, both disguises of a socially destructive handicap: and so on indefinitely. Mental disease is disease at the level of integration of the individual and society. It is not a disease of society as such nor yet of man as an individual solely, it is a disease of man as a social animal, it touches him in his social integrations.[3]

Of course this is an attitude quite contrary to that purely materialistic point of view which always seeks back of the symptoms for an explanation, which would explain the paretic psychosis, for example, by syphilis. Syphilis only disintegrates the machinery with which the individual must work out his salvation and brings his difficulties into the foreground. Syphilis may be the prime reason why an individual has a psychosis but the pathology of paresis will never be able to tell why the paretic has the delusion that he is worth untold millions or that he is God Almighty. It has been pretty well shown that the specific character of his delusions only receive their explanation when his personality make-up is known, until the personality material is understood that is involved in the struggle for expression which the syphilis makes so much more difficult.

Attention has already been called to the principle involved. The higher integration can never be explained fully by the lower integrations. Every integration involves at least two factors and the relation between them and in its essence the higher integration is this relation. The properties of water cannot be explained either by a study of oxygen or of hydrogen but only by the relation between them. Schiller[4] discusses this whole question quite

[3] Carpenter in his recent book Pagan and Christian Creeds suggests that the etymology of the word sin shows that it means to separate or sunder. Atonement by a separation of the syllables thus at-one-moment can be seen to imply a restoration of unity. Similarly a person suffering from an intrapsychic conflict may be said to be not at one with himself. This is the basis of the use of the word schizophrenia for dementia precox, which means a splitting of the personality.

[4] Riddles of the Sphinx.

fully. He says, among other things: "Naturalism is sooner or later doomed to failure. It leaves out the higher aspects of things and in the end these cannot be omitted. For the objects of the physical sciences forming the lower orders in the hierarchy of existence, though more extensive, are less significant. The atoms of the physicists may indeed be implied in the organization of conscious beings, but in a subordinate capacity: a living organism exhibits actions which cannot be formulated by the laws of physics alone; man is material, but he is also a great deal more, to wit, alive, psychical, and moral. Again, all bodies gravitate, but the activities of living, to say nothing of rational, bodies cannot be explained by the action of gravitation alone. So chemical affinities are presupposed in biological actions, but yet life is something more than and beyond chemical affinity. Thus it is the same inherent law of the method which is displayed, not only the palpable inadequacy of explaining biological facts by chemical or mechanical facts, but also in that of explaining the rational or moral by mere biology.

"The naturalistic method, therefore, in trying to explain the higher by the lower, constantly fails to include the whole of the higher, and is constantly driven to deny what it cannot explain, and to reduce the higher to the lower. But though at first it seems plausible to explain the higher and fuller by something which *seems* simpler because it is less significant, by dint of leaving out its surplus meaning, this process becomes more and more difficult the further it is carried, and if it were carried to its consistent conclusion, it would be seen to refute itself. It would end by explaining all things by that which is nothing in itself, and has meaning only in relation to the things it is supposed to explain. The further we carry our researches into the lower, the more it appears that it is not really simple, but only vaguer and more indefinite, and that the lack of differentiation indicates, not that we have got down to the fundamental principles of the complex, but that it arises from a confounding of all the distinctions which enable us to comprehend the thing.

"To take only the one example of protoplasm, which is the starting-point of biology (itself one of the higher sciences). *For biology* protoplasm is ultimate: it can no longer be derived from any lower and 'simpler' form of life. It can be defined only in

terms of what it becomes or develops into. Yet this 'simple' protoplasm performs all the functions which in its differentiated developments fall to the share of the most various structures and the most various faculties. It sees and hears and smells and tastes and feels, thinks and wills and moves, it absorbs and excretes, it grows and reproduces itself, and all without any discoverable difference of structure. What then have we gained by deriving differences we can see and partly understand from hypothetical differences which are invisible and incomprehensible? Is the mystery lessened by being relegated to the mythical region of the unknowable and imperceptible, and is it not in very deed an explanation *ignoti per ignotius*?"

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"Every step in advance does indeed mean a dropping away of some lower activities, until all have disappeared. But each step in advance also opens up new activities, and fuller realizations of old activities, which progressively increase the total content of life, and make the higher life richer and fuller than the lower. But these, of course, are not visible from the standpoint of the lower."

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"things must be explained by their significance and purpose instead of by their 'causes,' by their ideals instead of by their potentialities."

. . . . . .

"instead of being simpler and more susceptible of explanation, the lower stages of the process are really the obscurer and more unintelligible, because they do not so clearly exhibit the drift of the process."

. . . . . .

"The physical laws of nature are the earliest and lowest laws of the world-process, the most ingrained habits of things, the first attempts at the realization of its End, and so are the very last to become intelligible. If we ever arrive at a teleological explanation of them, it will be only after we have *worked down* to them from the higher laws of the more complex phenomena. The basis, in other words, for a teleological interpretation of nature will not be found in sciences like physics and mechanics, but in sciences like psychology, sociology, and ethics."

To revert from this digression into the realm of methodology to some further matters relating to this region between, so to speak, the individual and society, this borderland wherein are focalized the problems of psychopathology. It may seem that such a region is rather tenuous, that it is immaterial, intangible, all of which may be true, but its phenomena are none the less real. It is a region of relations rather than of ponderables, but relations are realities. The question is, How do these realities function? How is the space between the individual and society spanned so that the influence of each may be impressed upon the other? The answer to these questions involves an inquiry into the nature of the means of communication between individuals. This means has usually been thought to be included in what was commonly understood as language but it will be seen as soon as the matter is examined more carefully that this is a very restricted way of looking at the problem. The whole matter, however, may be approached by a consideration of language which, however, will be given a much broader meaning than usual.

Language.—Language as usually thought of comprises the words, spoken or written, which are used to convey thought. Such a conception implies, although it does not so state, that words are the only vehicles for conveying thoughts. This of course is very obviously not true for aside from the sign languages of deaf-mutes it is known how significant are many gestures, facial expressions particularly, which have not been reduced to any particular sign language scheme. Bearing only these facts in mind it would seem quite proper to enlarge the conception of language to include all methods of intercommunication, all ways of transmitting ideas, thoughts and feelings from one person to others. From this broader standpoint language as composed of spoken or written words becomes only one aspect of the problem of translating thoughts into terms that can be understood by others, it is, however, the most highly developed, the most definite and accurate method and conveys the larger quota of exact information.

To begin with the spoken and the written word. At first sight it would seem that the word was a very accurate vehicle for the transmission of thought, that it conveyed in a perfectly unequivocal way just exactly what was intended. A glance at a vol-

uminous work of some twelve hundred pages dealing exclusively with synonyms and antonyms dispells at once this illusion. The finer variations in the accepted meanings of word are multitudinous and the best choice of a word which most accurately fits the thought is a constant problem of the writer. Language is at best inaccurate, so much so that an unusually clear cut use of words attracts attention. Such an example is that of the definition of network in Johnson's English Dictionary as, "anything reticulated or decussated at equal distances, with interstices between the intersections." Even such a definition suggests that some of the words used to define might themselves need to be defined. Such words, for example, as "reticulated" and "decussated," to say nothing of even the more difficult words "or," "with," "the." The minute an attempt is made to define a word it is realized what difficulties are involved and that after all what is done is only to translate one word into others which themselves are often quite as much in need of definition and so on *ad infinitum* until finally forced to pause and accept something for granted in order to be able to start at all, a necessary precondition to getting anywhere. Aside from this evident inaccuracy and indefiniteness in the meanings of words as they are found in the dictionary the same words are used colloquially in different senses. Then if examined further it will be found that they are used by different groups of people, in special trades, for example, in quite special senses, that they are used differently in different places, and that they have developed different meanings from those which they had a generation or more ago. Not only do meanings change in these ways but they change on being translated from one language into another, and they are given quite new variations in meaning from time to time as new developments in thought require new words; already existing words are frequently called upon to serve new functions before new terms are invented and even new terms are old words, generally Greek or Latin, used in new ways or new combinations.

If the meanings of words are inquired into more closely it will be found that the word stands for different meanings among different peoples. The word horse for example stands for the concept horse, and this concept is very different in different persons according to their experiences. For example it is one thing

to a man who only owns horses for use in the delivery wagons of his business: another thing to a western cow-boy: still different to a breeder of fine racing horses, and so on. Horse as a concept and as a word is a *symbol* for a complex group of experiences of a certain general kind and similarity and must necessarily differ in each individual.

Thus the word, when it is examined as symbol, is seen to have very little of that definiteness, that concreteness, that finality which is ordinarily attributed to it. Its meaning lacks definiteness, it lacks fixity, but on the contrary seems to be in a state of unstable equilibrium constantly changing under the influence of the as constantly changing circumstances which influence it. But it is this very ready responsiveness to every change in attitude toward the thing symbolized that gives the word as symbol its very great value. The rapidly changing thoughts and feelings as they respond to the complex and ever varying changes that result from the interplay between the individual and his environment can always find expression in the wonderfully adaptive symbolism of the word. In fact it is largely as a result of the evolution of the symbol that man has come into his high estate. Speech is the most momentous distinction between man and the lower animals and speech which is made up of symbols both so wonderfully responsive and so wonderfully expressive has opened up possibilities for further development and evolution which, viewed from the present at least, seem limitless.

The enormous possibilities of the utilization of the symbol are at once apparent when such words are considered as God, Heaven, Hell, religion, salvation, good, bad, right, wrong, and it is realized how these symbols have retained their form unaltered in the written and the spoken word but yet how vast has been the change wrought in the concepts that lie behind them and which they continue to express.

Another enormously important quality of the symbol is its capacity to at once represent both the opposing elements of the conflict and their union in a satisfactory solution. This is of the very greatest importance in assisting to higher integrations. The energy of the conflict may be nucleated in the symbol, gain expression and so clear the way for further progress.[5] For ex-

[5] For a discussion of the functions of the symbol see my "Mechanisms of Character Formation." The Macmillan Co., New York, 1916.

ample, a person is in doubt as between two procedures; their merits are equal; each is advocated by a personal friend with arguments of equal strength. How is the dilemma to be solved? How is the energy of the individual which is imprisoned by indecision to be released in action? There are of course many ways and different individuals would reach a solution by different routes. One way will be suggested. Every argument for the two courses of action are to all intents and purposes of equal weight but as between the two advisers one is chosen rather than the other because more faith is reposed in him and the decision is made and action released. The whole situation with its opposing tendencies is gathered together in this one personality and symbolized by the faith reposed in it, the energy of the conflict is focalized and released through this symbol, the individual can now act, his energies are not only released but he can proceed now to other problems, he is no longer stalled by indecision.

If the reasons for the choice of one adviser rather than the other is analyzed it will be found that they are unconscious: The choice comes as the result of a feeling of confidence rather than because of any intellectually worked out *reason* although quite characteristically after the decision is made all sorts of reasons will then be given to account for it. They may easily be the reasons which were given in the first instance by the favored adviser to which others may be added, but an examination of the whole situation will demonstrate that they are reasons after the fact, justification rather than reasons which lead to the final choice. This is technically known as the process of *rationalization.* The real reasons, however, will be found in the unconscious. What may be the nature of these unconscious reasons?

When a choice is made such as that described, the unconscious motives will be found to depend upon factors which have been long active in the personality. For example, the rejected adviser will be found to resemble in some subtle way some one with whom an unpleasant experience in the past is coupled or the accepted adviser per contra will be found to resemble some one or some series of persons in whose judgment capacity the individual has had reason, as a result of experience, to repose confidence, perhaps an older brother or the father. What is the nature of this resemblance?

The nature of the qualities exhibited by individuals which relate them in sympathy or which, on the contrary, excite antipathy is of great importance. To suppose that feelings toward others is altogether conditioned by what they say is to have a very limited concept of the means of communication which exist between individuals, it is, in other words, to have a very contracted idea of what constitutes language if language is meant to include all the various methods of communication. To take the spoken word alone, for instance, not only is its meaning very different depending upon the circumstances under which it is spoken, but what is more important, its meaning varies widely depending upon the *way* in which it is spoken. The inflection, pitch and quality of the voice, the rapidity or slowness of the utterance, promptness or hesitation are all important factors to be taken into account. In addition there are innumerable accessory intimations such as the expression of the face, whether it reinforces or contradicts the spoken words, the attitude of the body; the presence of blushing, pallor, trembling, sweating, tension of muscles, rigidity of limbs, rapidity and depth of respiration and many other visible signs all of which contribute to the final interpretation. All these latter are much older than the spoken word and are seen typically in the lower animals as characteristic poses of anger, fear, hunger, curiosity, sexual excitement and have come down in typical form as means of emotional expression which through the unconscious serve as indications as to what the feeling of others is and upon what relations to them should be predicated.

If what has been said about the organism as a unity is recalled it will be appreciated how consistently each part of the organism must fit into the picture of the dominant attitude and how impossible it must be for this picture to be other than a true one in every one of its parts if wisdom enough is possessed to read this subtle language. As a matter of fact probably every one does read this language much more accurately than he knows but it is the language of emotion read by the feelings, by intuition, rather than a controlled intellectual interchange and when the postural tensions and the spoken word contradict each other it is plain which should be given credence.

To return to the illustration of the two advisers: It is just

when the advice given is contradicted by the unconsciously perceived postural tensions, when the attitude of the adviser is felt to be at variance with his advice, that a sense of distrust is felt; and just when both advice and posture display an attitude of helpfulness and friendliness that correspondingly confidence is felt.

It is this language of the feelings unconsciously expressed and unconsciously perceived that forms the background of language, the warp, upon which the more delicate and detailed pattern of the spoken word is woven. This unconscious language is the cement substance which binds the herd into a unity. The spoken language permits of a more detailed and individualistic relationship. Similar things might be said of it in comparison with the word as was said of the protopathic as compared with the epicritic type of response; namely, it is extensive rather than intensive, a whole or nothing response lacking epicritic definiteness, in other words it is general rather than specific.

Undoubtedly this language of the emotions is the medium by means of which the traditions of the race are transmitted. From this view point it is understandable how shame as a barrier against certain types of conduct to which the child is impelled by instinctive urges, curiosity and exhibitionistic trends, should be expected in all children at apparently the same age. Such conduct is prejudicial to the interests of the race and such prejudices embodied in the parents are passed on to the child through the medium of the language of feeling. To attribute such results to hypothetical determiners in the germ plasm is going further, to say the least, than existing facts warrant and is substituting an explanation which is more difficult to understand than the thing explained.

To return to the methodological principle that the higher can never be explained by the lower. The whole is something more than the sum of the parts, it is those parts integrated and in harmonious cooperation to a larger end. An emotion can never be explained by neural processes or chemical actions. The neural processes and the chemical actions may be contemporaneous but they are only correlates, the emotion could not exist without them but the emotion is something more, it involves their relation, a higher integration. No scientific discipline, therefore, can be re-

duced to terms of a discipline at a lower level of integration. Psychology can never be explained in terms of neural processes, chemistry or physics. This is the principle of the humanistic philosophy. As Schiller puts it:[6] "After all, the world to be explained is the world as it appears to us; the life to be justified is ours; the sciences to be synthesized are human products called into being by our interests and needs. Man, moreover, is the highest of the beings he knows, though not the highest of those he conjectures and postulates. He has, therefore, no other and no better key to the mystery of being. To interpret humanly is to interpret the lower by the higher, to interpret by a concrete reality and not by an abstraction, to interpret progressively and verifiably because in accordance with the progress of man's knowledge and the growth of his experience."

The language of the feelings is undoubtedly of vastly greater significance than is ordinarily thought: life is undoubtedly shot through with it at every turn, and because it is shrouded in the unconscious there is little recognition of its richness. It is, too, the language of psychopathology, the language in which is expressed those difficulties and errors of adjustment of man as a social animal, and the language which must be learned if the disorders of this region are to be understood.

[6] Riddles of the Sphinx.

CHAPTER VI

The Nature of the Neuroses and the Psychoses

There were two conclusions reached in the last chapter with which the matter of this chapter must be approached. One was a conclusion of fact, namely, that the region of psychopathology lies midway between the psychological and the social strata: the other was a conclusion of method: namely, that all of the facts of a given level of organization cannot be expressed in terms of a lower level, but can only be resumed in terms of the higher level. In other words a neurosis or a psychosis can only be understood if it is possible to describe it in psycho-sociological terms. The symptoms of mental disease display themselves in conduct, they are expressed in hopes and fears, in delusions and obsessions and none of these can be understood in terms, for example, of metabolism. There may be, it is true, various physiological and structural disorders and defects which are related to the mental disease but they are in no sense causes but only correlates; they are coexistent and in time of origin often contemporaneous but they cannot be considered as causes because they do not include the supposed effect, that is the mental illness; they are only parts of the picture. Mental reactions are total reactions in the sense that they are the expression of the tendency of the individual as a whole, they express the final result of the integration of the action systems and no part of the reacting individual can possibly include the explanation for such a total response any more than the written word can be adequately explained by one of the letters composing it. In the same sense the total reaction can only be fully understood by understanding all its parts, its structure, how it is composed, but in the final result can receive its full explanation only in the terms that belong to the final integration. The end and aim of the individual must be understood as it is sought to be compassed by his conduct in order to understand how and why he falls short of its attainment. In this sense psychiatry must be teleological.

These few words will serve as introduction to a description of the nature of the neuroses and psychoses approaching existing theories by such utilization of the historical evidence as serves to throw light upon the present problem.

Just as the descriptive school of psychiatry reached its apex and its culmination in Kraepelin so the description of the neuroses, or minor psychoses, reached their culmination in the work of Janet. Janet's work, however, is of especial interest and importance, because while it is acutely and brilliantly descriptive it already begins to be something more than that, it begins to be interpretative, and so marks a transition stage to present ways of thinking. He distinctly recognized that the neuroses were diseases without anatomical lesions and described them as being wholly psychological. He recognized two great neuroses, namely: hysteria and psychasthenia. His description of these and some of his comments[1] are of great interest. His definition of hysteria is: "Hysteria is a form of mental depression characterized by the retraction of the field of personal consciousness and a tendency to the dissociation and emancipation of the systems of ideas and functions which by their synthesis constitutes the personality." He says further that:[2] "The starting-point of hysteria is the same as that of most great neuroses, it is a depression, an exhaustion of the higher functions of the encephalon. All the psychological operations do not present, as I repeat, the same difficulty. There are some operations that are easy for all kinds of reasons, first, because they are simple and only require the union of a small number of elements; second, because they are old, because their systematization was the work of our ancestors and is inscribed in strongly constituted organs. There are some other functions that are difficult because, on the one hand, they are very complex, because they necessitate the systematization of an infinite number of elements, and because, on the other hand, they are very new and require a present synthesis, not yet inscribed in the organism. Now, our nervous strength, which we do not know at all, presents oscillations. When it is high, we easily accomplish the operations of the second group,

[1] Janet, P., Les Névroses. Paris, 1909.

[2] Janet, P., The Major Symptoms of Hysteria. The Macmillan Co., New York, 1907.

we have an extended consciousness, we turn back from no new study or action."

. . . . . .

"The diminution, the lowering of the nervous tension, may bring about a general lowering of all the functions, and especially of the highest. This is what takes place in the psychasthenic neuroses, in which the localization on a special point exists in a rather slight degree.

"With hystericals, in consequence of particular dispositions, the lowering of the nervous strength produces, in some manner, a superficial retraction, there is, as it were, an autonomy. Consciousness, which is no longer able to perform too complex operations, gives up some of them."

. . . . . .

"The function that disappears is the most complicated and the most difficult for the subject."

Under the caption psychasthenia, the other great neurosis he describes, Janet includes the obsessions, impulsions, doubts, tics, agitations, phobias, delirium of contact, anguishes, neurasthenias, and the feeelings of strangeness and depersonalisation often described under the name of cerebro-cardiac neuropathy or disease of Krishaber. He defines it as follows: "psychasthenia is a form of mental depression characterized by a lowering of the psychological tension, by a diminution of the functions which permit action on reality and the perception of the real, by the substitution of inferior and exaggerated operations under the form of doubts, agitations, anguish and by obsessing ideas which express the preceding troubles and which present themselves the same characters."

Hysteria then is a retraction of the field of personal consciousness with a tendency to dissociation dependent upon a depression or exhaustion of the higher functions, a lowering of the nervous tension, in which "the function that disappears is the most complicated and the most difficult for the subject." The analogy is plainly to fatigue.

Psychasthenia is due to a lowering of the psychological tension in which it is the function of the real which suffers most and this function of the real is precisely the highest function according to Janet. The manifestations of psychasthenia are due to

variations of the psychological tension and to oscillations of the mental level and produce symptoms in proportion to the lowering. In Janet's scheme of the hierarchy of mental functions (Chap. IV) the accurate estimation of reality stands highest, revery and imagination come lower down and muscular movements last. As the tension is lowered the reactions will tend to follow in the order of the psychological hierarchy. Here again the analogy is plainly to fatigue.

Janet, from this background, discusses the nature of neuroses in general.[3] In the first place neuroses are mental illnesses without lesion. In the second place they are diseases of the evolution of the mental functions. In their consideration one has to take into account the hierarchy of the functions and the question of arrest in their evolution. In this latter respect one distinguishes "the difference which exists between the deteriorations of the old functions characteristic of dementia and the arrests of evolution characteristic of the neuroses." He reaches the following definition of the neuroses: "The neuroses are maladies bearing on the various functions of the organism, characterized by an alteration of the superior parts of these functions, arrests in their evolution, in their adaptation to the present movement, to the present state of the exterior world and of the individual and by the absence of deterioration of the old parts of these same functions which are still able to express themselves very well in an abstract manner, independent of present circumstances. To resume, the neuroses are disorders of the various functions of the organism, characterized by the arrest of development without deterioration of the functions themselves." He adds that there is "tendency to replace the superior operations by the exageration of certain inferior operations and above all by gross visceral disturbances."

From this exposition it is evident that Janet's point of view is a distinct advance upon the simple descriptive method and a decided attempt at the analysis of the symptoms and the formulation of interpretations. He recognizes the neuroses as psychological and he approaches their interpretation from a genetic standpoint. His analogy to fatigue is rather vague and it will be seen how subsequent interpretations attempt to explain the failure of the higher systems to function adequately.

[3] Les Névroses.

The work of Janet was taken up and developed in this country largely by Sidis and Prince. The fact of dissociation was largely emphasized and the connection shown between the dissociated state and actual past experiences. This connection formed the basis of a therapeutic procedure, the re-association of the dissociated states.

At this point in the development of thought about the neuroses there came into the situation the investigations of Freud who was the creator of the present psychoanalytic movement. It is not necessary to trace the history of this movement nor to describe in detail its many contributions to the psychology of human behavior in its various forms. Only a description of the principal, important concepts which it has contributed will be undertaken.

To begin with perhaps the most important single thing stressed by Freud and his followers has been the deterministic attitude towards psychological facts. No matter what the idea or feeling it must have an adequate explanation in psychological terms. No matter how apparently foolish it may be an adequate study of all the conditions surrounding it will serve to explain it. No longer is it possible to rest content with calling a given idea a delusion or describing the products of a delirium as incoherent. Such words only label the phenomena, they do not serve to throw any light upon them, they offer nothing in the way of explanation. It was by approaching the symptoms of the neuroses with the absolute conviction that they had meaning and that that meaning could be discovered that explanation slowly took the place of labeling, and the further the search was carried the more understandable the symptoms became.

From the psychoanalytic viewpoint each psychic event was seen to have a history, in fact the historical aspects of the psyche as such were for the first time appreciated in other than a formal academic way. In fact the historical aspects of psychological facts became of prime practical importance in their understanding and therefore in formulating any therapeutic attack. The past of the psyche, through psychoanalysis, has come to have as much significance as has for so long been accorded the past of the body as incorporated in the sciences of embryology, comparative anatomy, and paleontology. This past has not only a

temporal significance but a much greater significance as expressed in terms of developmental progress. To understand the meaning of a given psychic event or of the psyche as a whole means, quite as in the case of the body, that the understanding must be approached from a genetic point of view.

The genetic approach is not new to psychology but it was revivified and made of vastly greater importance by the formulation by the psychoanalytic school of the *hypothesis of the unconscious.*[4] The unconscious is the historical past of the psyche just as the embryonic gill arches are a part of the historical past of the body and like the gill arches, the evidence of its existence is lost, except to the scientific explorer, because it comes to be woven into the fabric of present living by being incorporated into those functions with which present purposes are carried out. Just as back of the thyroid cartilage in its historical development can be found a gill arch, so back of a present character trait, such as a peculiarity of speech or posture, may be found an unconscious trait, for example, a feeling of inferiority.

The unconscious contains those tendencies and feeling attitudes which have been left behind in the course of development. They are left behind because in the course of development they have to give way to new types of solution as the increasingly complex environment makes more rigid demands for adjustment. Reactions which work very well for the child become progressively more and more impossible for the adult as the demands of reality press more insistently for recognition. The older, more infantile methods of response are gradually given up and as they are found no longer to work the tendency to yield to them is repressed more and more until they finally come to be no longer available. The child who learns that it can get what it wants by crying for it is forced to learn, as it grows older, that this way of getting its desires satisfied works less and less effectively and finally has to come to a more accurate evaluation of both its needs and its capacities for satisfying them. *Repression* is one of the dominant mechanisms which furthers cultural progress.

If for any reason some particular infantile mechanism has worked more than ordinarily well the child gives it up more re-

[4] For a discussion of the Unconscious see my Mechanisms of Character Formation. The Macmillan Co., New York, 1916.

luctantly and tends to pause over-long at that stage of development to which this mechanism corresponds. If for example the child is too much indulged it may not have had a sufficient stimulus to give up its method of gaining its satisfactions by crying and so tends to keep on trying to satisfy its needs in that way, or, if in later years the individual meets with rebuffs and failure, he tends to revert to this reaction as an old and tried method which, in his experience in the past, has been found to work. This is the mechanism of *fixation* which under certain circumstances of stress conditions the form of response which is chosen as a consequence of inefficiency, of meeting up with a situation in life which cannot be effectively handled. Perhaps actual crying is not resorted to but the reaction is of that general character and marks the symptom as the product of the mechanism of *regression*.

Repression, fixation, and regression are fundamental mechanisms involved in the neuroses. How do these mechanisms work and produce the symptoms? In order to explain this Freud developed the theory of the *censorship*. The unconscious tendencies are asocial or antisocial in character and do not ally themselves with the individual ideals. Therefore in seeking expression they come into opposition with those ideals thus producing the intrapsychic *conflict*. This conflict between the unconscious, egoistic, asocial tendencies and the ego-ideal must come to some kind of expression. The expression depends upon the relative strength of the opposing forces. The ego-ideal may dominate in which case the unconscious tendencies are repressed: the unconscious tendencies may dominate in which case they come to open expression as is so often seen in the psychoses in such conduct as open indulgence in auto-erotic activities: the two forces may, for a time at least, be pretty accurately balanced against one another and thus result doubts and indecision, or confusion: the two tendencies may alternately assume the supremacy; a patient may yield to his auto-erotic tendencies for a time until they have had a satisfying expression when the ego-ideal may again be able to take charge of the situation: or a compromise of some sort may be effected as is seen in the creation of an artificial world based upon delusional interpretations. These are the typical reactions in the psychoses. In the neuroses the conflict, so long as it remains unresolved, results in the development of types of reaction

which produce partial satisfaction to both tendencies, serve to give some expression to the unconscious motives while not sufficiently offending the ego-ideal to be altogether impossible and not sufficiently offending social standards to make it necessary to intern the patient. How are such compromises effected?

The repression of the unconscious strivings does not eliminate them from existence. They continue to seek some avenue of outlet in expression. But inasmuch as they are inacceptable to the ego-ideal they cannot come frankly into the field of conscious awareness. They therefore react to the subterfuge of disguise, they come to expression by a process of *symbolization* which, while it allows them an outlet effectually prevents their recognition by their host. For example, an unconscious tendency to cruelty may work itself off in a form of trenchant wit or the censorship may utilize the very effective disguise of expressing the tendency by its opposite, as hate against a particular person may be expressed by an undue solicitude for his welfare and safety.

All these are unsatisfactory, inadequate solutions of the conflict and tend to result in neuroses or psychoses. The reason for the failure, however, is not expressed after the manner of Janet by assuming that the higher elements are unable to function because thrown out of commission in some way analogous to fatigue.[5] According to Freud the difficulty is due to the conflict of mutually opposed tendencies, and the result depends upon their relative strength. In other words the conflict is between opposing wishes and the stronger wish wins out. The wish is the practical unit of mental life, and in the last analysis, the individual does what he wishes to do.

[5] A modification of the theory of Janet has recently been revived by W. H. R. Rivers in his paper Freud's Concept of the Censorship in The Psychoanalytic Review for July, 1920. In this paper Rivers gives it as his opinion that the symbolic distortion of unconscious wishes is not due to a process resembling censorship nor is it for the purpose of disguising their nature from the host, but that as the control of the upper psychic levels is removed for any cause the lower levels function in their own characteristic way and their symbols, because belonging to a past which has been left behind in the course of development, are simply not recognized. They speak a strange language which is not understood, to be sure, but which is not intended to be obscure or unintelligible.

The differences between the theories of Janet and of Freud are after all not so great as the statement thus far would make them appear. Janet has very well described the symptoms but he puts them down as the result of a process analogous to fatigue. Freud on the other hand sees them as the result of a conflict in which the ego-ideal cannot adequately express itself because of the drag back of unconscious tendencies. A little further insight into the Freudian interpretation, however, discloses that the result of the conflict must be the dissipation of a variable amount of psychic energy into unsatisfactory because inadequately expressive channels. It will be shown in the chapter which discusses therapeutics that the objective of both is to make the energy thus lost available for better ends. In other words it would be quite as possible to draw the analogy of fatigue to explain the results of the Freudian mechanisms. The difference between the two theories in this respect is that the Freudian is broader and deeper and so more pragmatically valuable than the theory of Janet because Janet only notes the result as analogous to fatigue while Freud explains how the etiological factors produce such a result.

Thus far the explanation has only been of the symptoms of mental ill health. Freud further attempts to show that when the unconscious tendencies are capable of gaining expression without resorting to the sterilizing processes that result from an insoluble conflict that the result is brought about by the process of *sublimation* and is satisfactory. This mechanism now needs to be briefly explained.

As one of the results of attempting a practical handling of individual, concrete difficulties it became evident that the unconscious tendencies which were inacceptable to the personality were, practically in every instance, of a sexual nature. This pansexualism has been the subject of the bitterest attacks upon the psychoanalysts, and has led to no little misunderstanding and been responsible more than any other one thing in preventing an acceptance of their principles. The reason why the sexual element is found so universally is because it is precisely the sexual cravings that are most repressed in present day civilization and find the greatest difficulty in gaining satisfactory expression. Further than this the problem will not be discussed at this point. It remains to be noted that the process of sublimation is a process that

permits these lower, concretely sexual cravings to come to expression at higher levels in ways that are socially acceptable and that in this refining process the cravings lose much if not all of their sexual character, are desexualized. Thus a curiosity which at its lower level was a curiosity in reference to sexual matters may in the slow process of growth and development be sublimated so that its energies are made available and converted into the curiosity of the scientist: a delight in sensual odors might be sublimated, in a similar way, into a highly refined and technical interest in perfumes: a cruelty instinct might find adequate expression at a level of social usefulness of the greatest value in the work of the surgeon: an exhibitionistic tendency might be sublimated to minister to the very valuable social activities of the actor and so on indefinitely. Sublimation therefore stands out as the finished product of the successful resolution of the conflict between forces of opposite sign, ambivalency, and as the mechanism by means of which the processes of integration, structuralization and individuation are carried along the path of differentiation to ever higher ends.

The application of these psychoanalytic principles to man's various activities and their use to explain the cultural progress of the race over and beyond their more limited application in the explanation of the neuroses and psychoses means that the same mechanisms are at work in health as in disease, the only difference being in the outcome, whether successful or unsuccessful. It means too that these mechanisms must have, if the explanations are correct, general biological validity. That this is so it has been the function of this book to show and it is implied by the formulation of the various mechanisms such as integration, structuralization, individuation, differentiation, conflict, ambivalency, and the illustration of each at the various levels, physiological, psychological, and sociological.

Jung in his departure from the strict application of the principles laid down by Freud has laid more emphasis upon the present moment. For him it is more important to inquire what is the particular task the patient is endeavoring to avoid rather than to analyze out the repressions and fixations. Regression to earlier, relatively infantile modes of response is conditioned by the fact that forward progress has become impossible. In the face of an

insurmountable obstacle to advance old ways of response which were formerly satisfactory are reanimated. Jung therefore emphasizes the push back while Freud lays emphasis upon the drag back. It would seem that both must be taken into account and that the point to which regression returns, or in other words, the old mechanism which is brought forward to do new service in meeting the problem of the present, is determined by the fixation, that is by the mechanism which in the previous history of the individual had proven satisfactory. The child that has learned that it can get what it wants by crying for it will cry again for what it wants when, as an adult, it finds that it cannot compass its desires in any other way.

Jung also lays much more emphasis upon the race back of the individual. Freud in his intensely practical way has always stuck closely to the actual facts which could be discovered in the lives of his patients. Jung is inclined to go further and explain these facts by the processes which have been at work in the race. Freud constructed the hypothesis of the unconscious. Jung has enlarged upon this concept of a personal unconscious by the formulation of the concept of a *collective unconscious.*[6] This collective unconscious is made up of the *instincts,* which "compel man to a conduct of life which is specifically human," and the *archetypes of apprehension* which "coerce intuition and apprehension to forms specifically human." Jung, therefore, as might be expected, pays much more attention to mythology and folk lore in coming to an understanding of human motives than to just the material derived from the individual experiences of his patients.

He is, too, much more inclined to consider all psychological phenomena as facts, albeit psychological facts, irrespective of whether or not they correspond to actual objective experiences as ordinarily conceived. Then too he often sees in the symptoms evidences of archaic types of reaction, evidences of the influence of the racial tendencies over and above what can be fully explained by the individual's own past.

Jung has therefore departed considerably from Freud in these respects. He also has departed in the sense that he does not stress the sexual nearly as much. In fact he posits a presexual stage in

[6] Jung, C. G., Instinct and the Unconscious. The British Journal of Psychology, Vol. X. Part I. November, 1919.

development. While Freud has enlarged the concept sexual to include a host of things which are only remotely or indirectly sexual, Jung has still further enlarged it to include any and all manifestations of creativeness, the creative instinct.

All these explanations thus far are in psychological terms and refer to neuroses and psychoses, to distortions resulting from the effort of the sexual instinct (Freud) or more broadly the creative instinct (Jung) to gain adequate expression. Adler now comes forward with a further hypothesis to account for the various distortions of the personality.

Adler's concept of the neuroses may be said to differ from the concepts of Freud and Jung in its attempt to define their organic bases; not that this concept is absent from either the Freud or the Jung scheme. Freud especially has considered it, but Adler makes the organic the basis of his whole consideration of the neuroses, and the starting point of his therapeutic attack.

For Adler the fundamental psychological element in the neuroses is the *feeling of inferiority,* which feeling of inferiority in every case founds in an *inferior organ.* The neurosis then consists in an effort on the part of the individual to overcome this feeling of inferiority, and its outward signs and symptoms are the manifestations of those dexterities developed to this end. This is the *flight to safety,* the effort to overcome the feeling of inferiority, and because it becomes the primary object of the neurotic it takes him away from reality on a false path. He spends his life in endeavoring to overcome the feeling of inferiority rather than in contact with reality. This is the *fictitious goal* of the neurotic.

This concept can be very much better understood if it is considered in connection with and as part of the larger concept of progressive integrations and adaptations as constituting the fundamental developmental process. If the psyche is made possible, and in fact is the expression and the end result of all of the organic integrations which have gone to build up the organism, then it must necessarily follow that every defect in this organic machinery must ultimately find its psychological expression. Every defect of integration must offer an obstacle to that orderly development which finally will present a well-rounded, well-balanced capacity for psychological reactions, and such a defect must nec-

essarily, therefore, modify the character make-up of the individual. And the way in which that modification takes place must result from the way in which the defect is dealt with. The defect may be side-tracked or circumnavigated, as it were, or it may be assimilated in part or in whole, or it may be so gross as to drag down the individual to its level, or it may, by the concentration of the efforts of the individual in this particular limited area, become the center of supernormal activities, so that the whole gamut from idiocy to genius, at least from their pathological and organic aspects, may thus be traced to organ inferiority.

The concept is a difficult one, and may be enlightened by a further type of illustration. For example, Adler, in explaining what he means by an inferior organ and the part it plays in the individual psyche would have it that the inferior organ, so to speak, hangs on to its childlike, infantile, inferior, relatively undeveloped ways of pleasure seeking, which, of course, if by pleasure is understood the fulfillment of desire in its broadest way, can practically only mean that the organ hangs on to that sort of capacity to function which is only possible at its stage of development so that, for example, the skin which in the polymorphous perverse period of infancy is the avenue through which all sorts of comforting and organically delicious sensations are transmitted to the baby, may remain inferior, and, therefore, in the adult may continue as a source of organic pleasure out of all proportion to the part which it should play in a properly balanced picture of the functions of the adult considered in their totality. There is the familiar type of exquisite who bathes and perfumes himself and wears silk underwear and all that sort of thing, because he retains an autoerotic gratification in cutaneous stimulations which he should have left behind to have become part of his developmental history, but which he has insisted upon dragging along with him as he grew to adulthood. It is not easy to say, and in fact there may be no evidence, that such a skin is inferior, but this is the way in which it would be reasoned out from the Adler viewpoint, and if instead of thinking of such a skin as has been described the possibilities of cutaneous eruptions are thought of, of the various pruritides and so forth, it will begin to be understood how skin inferiority may play its part in the later characterological peculiarities of the individual. Sadger's illumi-

nating article in an early number of the Jahrbuch[7] is suggested for consideration in this particular. It will be noted in studies of this sort that whereas the actual mechanism of the eruption itself may remain more or less hazy that the distribution of the lesions is of exceeding significance, particularly the pruritides, the lesions of a senile eczematous variety and certain neurotic erythemas and the like. Their localization about primary and secondary sexual foci seems to be almost, if not quite conclusive of their intimate psychological affiliations.

Another illustration of the same character may be taken from the organ of hearing; how might it be expected that an inferior organ of hearing would react from the Adlerian point of view? In the first place, if the organ of hearing was inferior it would be expected that it would focalize the individual's feeling of inferiority, in other words, that his apprehensiveness toward the world of reality, his fear of contact with actual experience would tend to focalize in the auditory zone, and if the development of this particular individual's auditory functioning were traced back it might be expected that it would disclose a history, as has already been indicated, of hanging on, so to speak, to infantile ways of pleasure seeking. Now to begin at the beginning and trace the history through according to this theory. A child would be found who was enormously interested in auditory experiences. Perhaps there might be found a child who had heard forbidden things in its very first years. Later on it might be expected to find that such a child expressed its curiosity primarily, of course, sexual curiosity, through its auditory apparatus and that it was always listening and trying to get information from hearing what other people were saying. As it grew to adulthood it might be found that such an individual, retaining the same ways of pleasure seeking, was perhaps interested in hearing obscene stories and jokes. It is to be borne in mind that the ambivalent opposite, the suppression (repression) of auditory stimuli is also a possible type of reaction. Such a person might react to obscene jokes with great emotional resentment. All the while there might be found running along hand in hand with such a development a tendency to suspicion of the environment, which would manifest itself by

[7] Sadger, J.: Ueber Haut, Schleimhaut und Muskelerotik. Jahrbuch für psychoanalytische und psychopathologische Forschungen.

a feeling of fear, apprehension and anxiety, in short of inferiority. If he saw people talking together in an intimate way and could not hear what they said, from that to the belief that they were talking about him, would be an inconsiderable step to take. And so it can be seen how slowly there is building up here the picture of a paranoiac, with his ideas of suspicion, his delusions of persecution, his hallucinations of hearing. And the hallucinations of hearing of a paranoiac in which he hears people say all sorts of disagreeable things to him if interpreted through their symbolic significance will be seen to represent the same pleasure seeking mechanisms that were openly manifested in childhood. This is the sort of reasoning that has to be used to develop such a character type as that found in paranoia on the basis of the Adlerian concepts.

This recalls certain observations made some years ago upon hallucinated persons,[8] taking them as they came into the hospital, and in looking over the results of these observations it is very interesting to discover that no hallucinated patient was found with normal sense organs. The ears, for example, showed some evidences of an old otitis media, or in older patients evidences of sclerosis and contraction of the drum membrane, diminished acuity of hearing, etc., etc. Such like evidences were found also in other sense organs except that in some instances, and this is also extremely interesting, the sense organ that was the particular recipient, so to speak, of the hallucinations was healthy but it was shown that the stimulus for the hallucinations was derived from another sense organ which was not healthy; in other words, the phenomenon of synaesthesis in which the first sensory change occurred in a diseased sense organ and was manifested as an hallucination in a healthy one. One instance in particular was that of an hallucination of smell which resulted from the stimulation of a congested and swollen lingual tonsil.

Still bearing in mind the general principle of psychical integrations the Adlerian viewpoint must be accepted as stated. Adler himself, especially in his work on organ inferiority, offers a lot of evidence which is inconclusive, not to say flimsy at times, or at least is flimsily presented. It makes no difference, however,

[8] White, Wm. A., Hallucinations. Jour. Nerv. and Mental Dis., November, 1904.

as to whether he happens to have presented it well or not, the concept must be accepted in the way stated. It is a concept which by no means is limited to the explanation of certain character traits; it is a concept which in its broader significance compasses the whole field of biological development. Child's theory of physiological individuality defines individuality as all that which may be included under the control of a metabolic or dynamic gradient. Now of course, the metabolic and the dynamic gradient of the human individual is the central nervous system. All may therefore be considered individual in him which remains subservient to this centralized authority, and just as a group of cells may spring into activity and throw off the yoke, so to speak, of this central authority, set up a government of their own, develop perhaps their own independent dynamic gradient, and become, therefore what is called a tumor, which is really from this point of view a separate and of course, a parasitic individual, so a sense organ, the eye for example, may do the same thing. An eye which insists upon remaining at lower cultural levels of pleasure seeking, as, for example, the eye of the young man who was arrested because he had fixed a mirror on the end of a stick and went about the street shoving this under women's skirts, a sort of periscopic eye, the eye of such an individual which continues to seek pleasure at such cultural levels may be considered as being in this same way an anarchist in its tendencies toward the total integration, perhaps not so much the eye when speaking in psychological terms as what might better be termed the eye libido. So, such an individual is suffering, it might be said figuratively, speaking from the point of view of an energy concept, from tumor of the eye libido. He is suffering because his eye libido cannot be integrated with the rest of his personality and be made subservient to the larger ends of the individual as a whole, but continues to manifest itself at infantile levels of pleasure seeking. It would be interesting, not only to examine such an eye ophthalmologically for evidences of inferiority, but by the Abderhalden technic.

The working out of the significance of the various neurotic character traits is ringing the changes on the basic formulation of what Adler calls the *masculine protest.* It is as if the neurotic said to himself, "I wish to be a complete man." In this formulation is seen a marked departure from the pansexualism of Freud

who traces the neuroses to a defective elaboration of the race-preservative or sexual instinct. For Adler the basic feature is the effort to overcome the feeling of inferiority by seeking safety, the safety motive to conduct, and so is rather an expression of the "will to power" or the self-preservative instinct.

For Adler as for Freud the neurosis or the psychosis is comparable to a work of art but it has been built up in response to a fictitious goal which collects and unites into a group those psychic elements of which it can make use, collecting only those which promise results in the effort at the attainment of security. The attempt to attain to the maximation of the ego fails because directed along a false path. The neurosis or psychosis is therefore a constructive creation, a compensation product, which however, fails because of its false direction.

In his work on organ inferiority[9] the organic basis of this psychological formulation is laid. In this work he has gone to considerable pains in working over the psychological characteristics of persons who have had demonstrably inferior organs, either clinically evident or showing up at autopsy. From this work he believes he has been able to show that the predominant traits of character are the results of an effort on the part of the individual to overcome a feeling of inferiority resulting from an inferior organ. A classical example is that of the stammerer Demosthenes who became the greatest orator of Greece. In his later work on the neurotic constitution[10] he has worked over the psychological material in great detail.

This is the Adlerian concept, an exceedingly useful one and pragmatically very valuable because it serves to bridge the gap between the organicists and functionalists. As a method of approach to the neuroses it rather tends to lack that capacity for individualizing the patient's symptoms, which is of value. The organic part of the situation is of little or no interest to the patient, and in the way in which here set forth would, in a majority of cases, be incomprehensible. Actual feelings, actual

[9] Adler, A., Study of Organ Inferiority and Its Psychical Compensation, A Contribution to Clinical Medicine. Nerv. and Mental Dis. Monograph Series, No. 24.

[10] Adler, A., The Neurotic Constitution. Outlines of a Comparative Individualistic Psychology and Psychotherapy. Moffat, Yard & Co., New York, 1917.

strivings at the psychological level, emotional trends, desires, etc., are the things that the patients can be brought to understand because they actually feel them. They can be brought into consciousness and dealt with, and in this way the approach along more strictly Freudian lines is more valuable. The Adlerian concept, however, is a broad formulation which is of great scientific and philosophic value but not of the same therapeutic value in dealing with the individual because for the most part one has to deal with the capacity for psychological readjustments. The Adlerian concept, on the other hand, is a constant reminder that the capacity for psychological readjustment may depend, in the last analysis, upon some assistance that can be offered from the organic side, a reminder which should be taken seriously, quite as seriously as the internist should take the suggestions of psychogenesis.

Adler's theory was constructed to explain the psychological symptoms of the neuroses and psychoses. It brought a much needed emphasis to the organic side of the problem and made the neurosis not only more understandable but more a part of the individual. The dissociated cravings were no longer parasitic but correlated and integrated as parts of the individual as a whole. To round out the concept, to come to an adequate appreciation of how the symptoms of mental illness are expressions of the individual as a whole, how the mechanisms involved are quite the same as those which produce the phenomena of health, it is important to understand the principles on which the individual deals with his organic cravings and show how the only difference between health and disease lies in the degree of success with which this problem is met. Kempf has attempted to do this in his discussion of the autonomic apparatus and the personality.[11] His theory runs as follows: The autonomic nervous system[12] is the primitive nervous apparatus composed of two sets of mutually opposed regulatory apparatuses which function as controls of the smooth musculature, visceral and skeletal, and the glands. This

[11] Kempf, E. J., The Autonomic Functions and the Personality. Nervous and Mental Disease Monograph Series, No. 28.

[12] Kempf uses the term autonomic nervous system as synonymous with the term vegetative nervous system to include the sympathetic (thoracicolumbar outflow), and what has been variously termed the extended vagus, the midbrain, bulbar, and sacral sympathetic, the para-sympathetic, and the autonomic.

system operates through the endocrine glands and their hormone secretions to bring about balanced physiological interrelations which play a most important part in the integration of the organism as a whole. The needs of the organism, its tendencies, trends, are expressions of the directions of its several constituent parts as integrated by the autonomic apparatus and the psychological reverberations of which are the affects. In other words the autonomic apparatus registers the organic needs of the organism the psychological aspects of which are the affects.

Now, in the scheme of the entire individual, What part does the cerebrospinal nervous system, or as Kempf prefers to call it, in contrast to the autonomic nervous system, the projicient nervous system play? The projicient nervous system has been, so to speak, erected as an apparatus for bringing about a satisfaction of the organic needs. The projicient apparatus effects a relation of the organism to reality through the medium of the exteroceptors and is therefore able to relate the organism to the environment in such a way as to bring to pass a satisfaction of its needs, or to speak psychologically, of its affective cravings. Hunger, for example, is an affective craving testifying to an organic need. The projicient apparatus so relates the organism to its environment as to secure food and thus satisfy, or bring about a neutralization of, the craving.

The intimate interrelations of the autonomic and the projicient apparatuses is testified to not only by the presence of autonomic centers in the cord, the bulb, and the mid-brain, but by the recently fairly well established fact of the innervation of the skeletal (voluntary, striped) musculature. Just as the autonomic is the more primitive form of nervous system so the smooth (involuntary) muscle fibre is the more primitive form of muscle fibre and as the projicient nervous system has been developed to bring about such motor responses as will effect a neutralization of organic needs so the voluntary musculature has been developed to respond to the dictates of the projicient nervous system. The voluntary type of muscle consists of two parts sarcoplasmatic substance which is innervated by the autonomic system and, imbedded within this substance, the anisotropic disc system which is innervated by the projicient nervous apparatus.[18]

[18] Ramsay Hunt, Progressive Atrophy of Globus Pallidus. Brain, Vol. 40, No. 1.

From this it will be seen that Kempf is an ardent supporter of the James-Lange theory of the peripheral origin of the emotions so definitely testified to in the particular case of hunger by the work of Cannon,[14] who found by his fluoroscopic investigations that the feeling of hunger occurred contemporaneously with certain contractions of the stomach. Motion thus becomes the end and aim of integration and the precondition of effective adaptation. All this Kempf thinks is an argument for the peripheral origin of thought for from this point of view it can be said "that in a certain sense we think with our muscles."

The integration of the various organic needs, each serving its own ends, but in addition falling in line in the service of the ends of the organism as a whole, lies at the basis of an efficient personality. Just as in society if the shoemakers should gain sufficient power to impress their ways of reacting upon all the others and cause everyone to minister to the function of making shoes, society would be sick, so if any one of the inherent autonomic cravings is disproportionately developed and so becomes able to make the rest of the organism subservient to it, the individual is sick. The healthy individual is one in which all of the organic needs reach a satisfaction which is subservient to the larger good of the whole organism. Correspondingly society is healthy when the shoemakers, tailors, bakers, and all the rest are properly proportioned in their several activities.

How do these matters get out of proportion? Here come up for consideration the familiar problems of fixation, conflict, and repression. Conflict is already seen to be due to an undue dominance of some special organic need, or, translated into psychological terms, of some affective craving. In physiological terms conflict represents the strivings of the parts of the organism for the control of the final common (projicient) motor path for adjustment. Fixation, expressed in similar physiological terms, is the result of conditioning the autonomic reflex. A child which has been frightened and hurt by a doctor with a black beard may afterwards exhibit fear of all men with black beards. The affect of fear has been conditioned by the associated circumstances of a man with a black beard. The fear mechanism has been rendered

[14] Walter B. Cannon, Bodily Changes in Pain, Hunger, Fear and Rage. New York and London, D. Appleton & Co., 1915.

especially vulnerable to the conditioning circumstance—man with a black beard.

It is the subject of repression, however, which is most illuminated by this physiological viewpoint. In the struggle of the component organic parts of the organism for the satisfaction of their respective cravings the nervous system, more particularly the autonomic, is conceived as having evolved according to the principle laid down by Sherrington on the basis of mechanisms of coordination of allied impulses and incoordination of antagonistic impulses. The illuminating work of Sherrington on the contemporaneous innervation of the agonist and antagonist muscles[15] in bodily movement is well known and accepted. The struggle of the various, often antagonistic, cravings of the autonomic apparatus for the possession of the final common path leads to conditions of tension—of the viscera (unstriped muscle) and of the voluntary musculature (unstriped component—sarcoplastic substance).[16] These states of tension produce conditions of heightened visceral tonicity and various forms of postural tonus.[17] If the craving is unable, for any reason, to secure neutralizing stimuli the increased visceral tonicities and postural tensions conditioned by them continue. The energy of the repressed affects is bound up in these visceral and postural tensions. Here is the crux of Kempf's contribution. The affects are the psychological reverberations, so to speak, of the autonomically conditioned visceral and postural tonicities which thus become the physiological aspects of the emotions, more especially of the unconscious. Emotions are the results of cravings which are not for the time being able to effect their expression by causing the projicient nervous system to expose the necessary receptors to neutralizing stimuli. The trends of the personality, the moods, affects, emotions are the results of the autonomic pressure for satisfaction of the organic needs. The sensory autonomic stream is the coenesthetic background of the personality, the outward and evident aspects of what are representatives of the various strivings,

[15] Charles S. Sherrington, The Integrative Action of the Nervous System. London, Archibald Constable & Co., Ltd., 1906.

[16] Hunt, l. c.

[17] C. S. Sherrington, Postural Activity of Muscle and Nerve. Brain, Vol. 38, Pt. 3. T. W. Langelaan, On Muscle Tonus. Brain, Vol. 38, Pt. 3.

positive or negative, avertive (type fear) or acquisitive (type love) of the organism to acquire satisfaction (neutralizing stimuli) for its various organic needs.

Character, personality from this point of view becomes then the final result of the more or less effective compromises which are struck in the general tendency of the several organic needs to acquire an adequately balanced, integrated, expression. The psychological background, the unconscious, is the final integration of the sum of motor sets in the autonomic apparatus. These motor sets, the physiological aspects of the dynamic components of the personality, are relatively constant and permanent depending upon the unfatiguability of the nervous tonectic systems.[18] Further, these motor sets represent at the physiological level, tendencies which need not be, and for the most part are not conscious in the sense of consciousness as awareness. Awareness plays upon the content of the unconscious as a search light, bringing first this and then that field within the area of its illumination, it neither creates the content by illuminating it nor destroys it by sweeping on to other regions and leaving it in obscurity.

This theory of Kempf's goes far in the direction indicated by Adler, namely, the direction of bringing the organicists and the functionalists to a common ground of understanding and further in wiping out the artificial distinctions which academic psychology has so long made between those hypothetical entities, mind and body, for "consciousness or awareness at any moment is the reaction of the organism as a unity to the special activity of any one or several of its receptor fields." It gives an explanation of the possible relations that may exist between certain character traits, more particularly certain pathological mental states and certain physiological disturbances and even organic disorders. This way of looking at the facts offers a new approach to the baffling problem of the emotions and an indication that a further understanding of them may be reached by a more careful analysis of their physiological modes of expression in visceral tonicities and postural tensions. Such a knowledge would be invaluable in the

[18] William A. White, Some Considerations Regarding the Factor of Fatigue with Reference to Industrial Conditions. Transactions of the Fifteenth International Conference on Hygiene and Demography, 1912. Am. Jr. Med. Sci., Feb., 1913.

clinic by reversing the process and illuminating, in the evidence of motor sets (attitudes, mannerisms, visceral disturbances, etc.), the nature of the affective conflicts of which the patient is the host.

Kempf briefly discusses, from this point of view, the major emotions: fear, anger, shame, disgust, sorrow, joy, anguish, love, jealousy and envy. He suggests that many pathological conditions may be illuminated by an approach from this angle as, for example, catatonia, functional cardiac disorders, convulsions, myopathies. Certainly there can no longer be much doubt that the study of the individual cannot be satisfactorily pursued by leaving out of consideration the psychological (symbolic) level.[19] Only by an understanding of the individual as a whole can an adequate comprehension of its several parts be reached because those several parts are parts of the larger organic unity and their meaning is merged indissolubly with it. The various physical symptoms known as conversion phenomena have already reached an explanation from the psychological approach; convulsions (epilepsy) have more recently had much light thrown upon their etiology by the same method of approach;[20] such postural states as produce facial asymmetry and peculiar positions of the body are regularly submitted to scrutiny by the psychoanalyst; a host of visceral conditions are already recognized as having some sort of neuropathic determiners (spastic conditions in the gastro-intestinal tract such as spastic colon, pylorospasm, etc., which may lead to organic changes such as gastric or duodenal ulcer); it is entirely within reason to look for the psychogenic factors in such diseases as diabetes mellitus, particularly the adrenalinogenic type;[21] myopathies have already been suggested by Langelaan, and why not the muscular atrophies in general? as determined in part at least by chronic postural tensions which, when another cause is operative such as lues, may have rendered the muscle groups concerned especially vulnerable. The suggestions in many

[19] S. E. Jelliffe and W. A. White, Diseases of the Nervous System (Introduction). Lea & Febiger, Philadelphia and New York, third edition, 1919.

[20] L. Pierce Clark, The Nature and Pathogenesis of Epilepsy. New York Med. Jour., Feb. 27, March 6, 13, 20 and 27, 1915.

[21] William A. White, Mechanisms of Character Formation. New York, The Macmillan Co., 1916.

directions, which have hitherto baffled the investigator, are certainly very seductive.

Finally the problem of sublimation is taken up from the same point of view, which is really the point of view of energy distribution. Progress from infancy to adulthood does not involve changes of direction but the progressive substitution of new love objects or the progressive refinements of the old. This substitution is successful when it proceeds along the path that brings to the individual social esteem and Kempf makes much of the need of social esteem as a dynamic factor in controlling the ways in which expression may be sought.

This theory is a distinct contribution to the new psychiatry which is rapidly growing as the result, in very large part, of the stimulus of the psychoanalytic movement. Whatever the relation of Kempf's views to Adler's theory of organ inferiority remains to be seen but that it is a very much broader and all-inclusive way of viewing the facts there can be no question. It marks a distinct step in advance in laying a broader foundation for psychiatry not only from the point of view of a better understanding of the psychology of the emotions in particular and their relations to the conscious thinking (intellectual) functions but by way of correlating the observed facts of psychology, especially psychopathology, with other scientific disciplines, especially physiology on the one hand and the humanities on the other. In these times of portentous social readjustments it is of extreme importance to have guiding principles along which to safely work and thereby perhaps avoid many of the pitfalls of the obvious.

The substitution of the wish for the sensation as the unit of psychic experience has been one of the most fruitful changes which has been effected in the science of psychology. Kempf translates the wish into terms of visceral tonus and postural tension and thus assists in a broader and more accurate comprehension of the structuralization of function. One of the most fruitful sources of further investigation will be along the lines of similar formulations for those disturbances which are grouped under the general designation of the endocrinopathies, not only the acute disturbances but the more or less chronic and fixed sets of the organism along certain metabolic types of activity and structural peculiarities. The utility of such an approach to the

problems presented by an acute thyreopathy of psychogenic origin seems more or less obvious. Why should there not also be found a characteristic picture at the symbolic level for such a condition as that comprised in Fröhlich's syndrome? Of course one might not expect results from a psychotherapeutic approach to an infectious form of thyroiditis but it is in just such distinctions that the skill of the all-round physician is manifest. Perhaps even in such cases an analysis of the psychic factors which might operate to stimulate the thyroid mechanism might not be altogether amiss. Certainly in many cases of tuberculosis, and other forms of chronic visceral disease, a complete understanding of the picture, the end result, is quite impossible without encompassing the entire life history of the individual, understanding the, so to speak, setting in which the disease occurs—the determination of the psychological component. The more this is done the more it is appreciated that the psyche cannot be longer left out of consideration. The habits of life which have rendered the patient a fitting host for certain pathological types of reaction can surely have much light thrown upon them by a psychological approach to their explanation. The results from such studies, while perhaps they might not be of much value to the already afflicted patient, would surely offer invaluable suggestions as to prophylaxis.

Based upon this formulation of the nature of the neuroses and psychoses Kempf has constructed a mechanistic classification which sets forth the mechanisms involved instead of grouping symptoms together into nosological categories. This tends to focus the attention upon the process rather than upon the etiological factors, pathological lesions, descriptive aspects or the name and is therefore essentially dynamic in conception and more helpful for purposes of psychotherapy.

It will be noted that the designations benign and pernicious are not based upon the outcome as is usual but depend upon the patient's attitude towards his wishes or cravings, whether he recognizes their personal source or, on the contrary, blames an external or impersonal cause. This distinction is very useful and quite in accord with the descriptive differences between a neurosis and a psychosis as set forth by Adler. In the neurosis the patient is striving for an unattainable ideal but the pursuit does

Fold out

MECHAN[illegible] NEUROSES AND PSYCHOSES—PRODUCED BY DISTORTION OF AUTONOMIC-A[illegible]

	Diagnostic Classification		Mechanistic Differences	Common Symptoms		Common
ACUTE OR PERIODIC OR CHRONIC	BENIGN. (Tendency to accept the personal source of the wishes or cravings which cause the distress or psychosis.)	SUPPRESSION NEUROSES.	Clear to vague consciousness of the nature and effect of the ungratifiable affective cravings.	Distressing hypertensions or hypotensions of autonomic (visceral) segments (mild to severe).	Decrease of power to coördinate, persistent thoughts, preoccupation, unpleasant dreams, insomnia, errors, accidents, scalp pains, headache, dizziness, stiffness or weakness of external muscles of eyes, back of neck, limbs, back, tongue, pharynx, increased or decreased secretion of glands of mouth, stomach; dyspnea, tachycardia, high blood pressure, loss of or freakishness of appetite, hyperchlorrhydria, diarrhea, constipation, dysmenorrhea, amenorrhea, sexual impotence, pollakiuria, hyperirritability of diseased structures; decrease of energy, or efficiency, or ability to learn.	Fear of responsibility for havi[illegible] the relief of, v[illegible] ings. Fear of competit[illegible] functional or o[illegible] orities. Fear of pain, in[illegible] money, honor. Fear of violating[illegible] tions or transfe[illegible] Love of unobtai[illegible] sponsive or per[illegible] Hate, shame, dis[illegible] avoidable objec[illegible]
		REPRESSION NEUROSES.	Vague consciousness to total unconsciousness of the nature and influence of the ungratifiable affective cravings.	The above symptoms plus functional distortions of the projicient apparatus and changes in reactivity to the sense organs.	Amnesias (specific). Anesthesias,—specific, localized, general. Hyperesthesias, paresthesias. Postural tensions—spastic, flaccid. Simulations of postures, functions. Convulsions without loss of consciousness. Eliminations of segments or functions, recurring incoördinations, errors, accidents. Misinterpretations, misrepresentations. Fixed preferences, aversions, phobias, compulsions, obsessions (acceptable to the ego), mannerisms, attitudes, fetiches, symbols, rituals, habits, sexual reactions. Cravings for certain stimuli—esthetic, sexual.	Same as above, occurring under[illegible] critical physiolo[illegible] vironmental co[illegible] cessitating imm[illegible] or forgetting, as[illegible] exposure of s[illegible] wishes, indulge[illegible] dals, asocial cr[illegible] ures, inferioritie[illegible]
	PERNICIOUS. (Tendency to oppose or refuse to accept the personal source of the wish or craving, to hate those who would attribute a personal source, to blame an external or impersonal cause.)	COMPENSATORY NEUROSES.	Persistent striving to develop potent functions and win social esteem initiated by fear of impotence or loss of control of asocial cravings.	Usually some of the above symptoms plus vigorous compulsions or inspirations to strive directly or indirectly for specific environmental-social conditions and potent functions.	Usually eccentric personal, vocational, professional, religious artistic, mechanical, commercial, philosophical striving, sexual strivings (pimps, seducers, white slavers). Eccentric penitent acts, reforms, reconstructions, solicitious interests, confessions, hyperconscientiousness, obsessions, divine inspirations, occult powers. Increased muscle tensions, high blood pressure, tachycardia, exophthalmic tensions. Exhibitionistic dress, voice, manners, heedless spending, grand unsubstantiated claims, eccentric modesty, curiosity, etc. Hyperative glands—thyroid, adrenals, sex, glycohemia, glycosuria.	Fear of loss of sex[illegible] and domination cravings, fear of[illegible] of fear, fear of object, fear of censure, ridicu[illegible] organic failure. Hyperactive glan[illegible] adrenals, sex. Glycohemia, glyc[illegible]
		REGRESSION NEUROSES.	Failure to compensate but regression to a preceding more comfortable, irresponsible level permitting wish-fulfilling fancies, postures and indulgences.	Distressing visceral tensions, rare, but persistent maintenance of characteristic affective attitudes of the prenatal infantile or preadolescent stage.	Evasion of responsibility, general inefficiency, wandering, hoboism, home sickness, indifference, apathy, childish day dreams. Lowered muscle tonus, no capacity to compensate to win esteem, muteness, amotility, indifference to cleanliness, order, system, coöperation, failure, hopeless depression, suicide, preadolescent, infantile, prenatal, attitudes. Indulgence in excretory erotic play, fancies, childish destructiveness.	Infantile love fi[illegible] of irreplaceable permanent, ins[illegible] obstacles to th[illegible] ings; blotting[illegible] astrous or shar[illegible] ences, or the development cravings, partic[illegible] erotic.
		DISSOCIATION NEUROSES.	The uncontrollable cravings dominate the personality despite the efforts of the *ego* to prevent it.	Symptoms of distressing visceral tensions, with or without functional distortions, with or without eccentric defenses or compensations, with (see next space).	Sensory derangements, delusions, hallucinations, environmental and social disorientation, uncontrollable preoccupation, confusion, delirium, stupor, anxiety, apprehension, panic at loss of self-control, wild or systematic compensatory striving, bluffing, raging as a defense against the uncontrollable cravings, defensive compulsion to systematize signs, remarks, proofs of exogenous influences, uncontrollable, unacceptable obsessions, phobias, mannerisms, impulses, postures, rituals, (distressing the ego) heedless yielding to excretory erotic cravings, fancies of preadolescent or infantile nature.	Irrepressible, u[illegible] asocial or pe[illegible] mental craving[illegible] Inability to prev[illegible] disguised cra[illegible] breaking throu[illegible] resistance b[illegible] fatigue, discour[illegible] pressing dom[illegible] others, seducti[illegible] physical shock[illegible] means of metabolic dyst[illegible]

not lead to an open conflict with reality, reality is only an obstacle; in the psychosis the patient does not act as though he were striving for some end but as though that end had already been attained. For example, the neurotic strives for power, the psychotic *is* the emperor, the President of the United States.

The neuroses are then divided into suppression, repression, compensation, regression and dissociation types. These terms are sufficiently explained by the table. They represent a scale in the seriousness of the situation. It is important to appreciate that these terms do not necessarily apply to the whole psyche but only to that aspect which is involved in the difficulties. A person with a marked compensatory psychosis might be able to live and function quite effectively so long as the particular region of the psychosis was not invaded. Patients with marked delusions are often able to work very effectively and steadily under circumstances that do not call upon them for undue adjustments in that psychological territory which the delusion has been evolved to protect.

With regard to all of these conditions it would seem that the depth of regression or the depth of the point of fixation is a factor, perhaps the most important one, in the seriousness of the neurosis or psychosis. Kempf has indicated that the only factor is the attitude of the patient towards his cravings as indicated. It seems hardly possible that this can be the only factor. It would seem that the depth from which the disturbance radiates must play the important part. If the discussion of the nature of the archaic material is recalled it would seem that another element is suggested. Every psychological state must have an aspect due to the personal experiences of the individual but must also have an aspect which is contributed by the experience of the race, and the two, while fusing, must be different. The gill arches of the human embryo, for example, belong to the developmental history of the individual, they also have an aspect which allies them with the early ancestors of the race. As already indicated it would seem that their subsequent history depends upon which factor receives the most emphasis. The psychotic who can bring things to pass by thinking them so harks back in his regressive tendencies to the infantile period of the all-powerfulness of thought, but there was a similar period in the history of the race and it

may well be that whether the same tendency, the will to power, produces a neurosis or a psychosis in the sense of Adler depends upon which aspect receives the greater emphasis. In other words it is the prominence of the phylogenetic factor which makes the experience seem strange and prevents its recognition by the patient as having a personal source. In the same way delusions and behavior which contain a considerable amount of this archaic material seem unpsychological because normal persons cannot feel themselves into such experiences. This is the line along which Jung's work is particularly illuminating though it is still a matter of research. It may well be that the unanalyzable residual of unconscious material represents this phylogenetic factor and that for its explanation the services of the anthropologist and the philologist will have to be sought.

Kempf further has made a most useful correlation, in this table, of the physiological disturbances which run parallel with the psychological mechanisms. He is an advocate of the James-Lange theory of the emotions, explaining the emotions as secondary to the set of the action systems for a given task of expression. In this sense the emotions are the reverberations in consciousness of the various action tensions. Inasmuch as it is often difficult to decide which comes first, the conscious experience or the motor set, and inasmuch, further, as the psychological is only expressive of the reaction of the individual as a whole while the particular tension is only the activation of that part of his machinery pressed into service for the particular end it would seem quite as logical to interpret them as different aspects of the same whole and as being contemporaneous rather than as occupying positions of cause and effect. This is only another suggestion which seems in line with that more comprehensive consideration of the problem which does not make artificial distinctions either between mind and body ,or between individual and society and assists that larger viewpoint of psychopathology as a disturbance in the region of the individual-society relation as laid down in the last chapter. From this point of view, of the individual-society relation, the emphasis in the psychosis can be seen to be upon the aspect of social adjustment, the failure of which tends to eliminate the individual from the herd as a useful, functioning member; while in the neurosis the emphasis is upon

the personal side of the relationship, failure being reflected in the individual as unhappiness. The socialization of instinctive tendencies makes for better adjustment to the herd on the one hand and for a greater measure of happiness on the other.

From this larger view-point it is apparent that the personality, as an energy system, can no longer be neglected in the study of the individual, either by the psychiatrist or the internist on the one hand or by the sociologist on the other, if all the factors that enter into a given problem of abnormal behavior are to be uncovered and the several parts they play adequately evaluated. Like all new concepts it commends itself as possibly offering explanations for that group of diseases, and those aspects of disease which have, up to the present time, defied explanation.

Certain of the endocrinopathies (particularly thyroid and adrenal) at once suggest this angle of approach as offering problems of adjustment which have as yet not been sufficiently organized to be laid down in structure. Various visceral disorders such as spasms (pylorospasm, spastic constipation) suggest a similar approach in which the spasm can be understood as confining the energy of an organic craving which is unable to gain an outlet in expression by commanding a final, common motor path. This is the physiological mechanism at the basis of what the psychoanalysts call fixation and repression. Some of the myopathies invite study from the point of view of postural tensions. More massive phenomena such as epilepsy and catatonic states come in for like consideration while in the more obvious functional types of cardiac disorder, the conversions of hysteria and in a host of so-called hysterical symptoms the presence of a psychogenic factor is already accepted. More clearly defined disease types such as diabetes suggest further study along these lines, while such organic conditions as chronic nephritis, pulmonary tuberculosis, and even cancer may have their etiology illuminated by a closer study of the life histories of those in whom they develop with a view to discovering the dynamic factors which have been at work through the life of the individual, and, operating as long-continued stresses finally broken down the organic compensations in certain directions. Many chronic diseases may well be total life reactions which can only be fully understood when the psychological as well as the somatic symptomatology is taken into account.

Just as these disease problems can be advantageously approached from this angle so can other similar problems be perhaps illuminated in the same way, for example, the problem why certain etiological factors, for instance, the tubercle bacillus, should attack the lung in one person, the kidney in another, etc. This opens up for consideration the whole, great question of individual types of susceptibility to disease, a question which it would seem cannot be solved without at least taking into consideration the organism as a whole. The study, for example, of the relation of certain types of pulmonary tuberculosis to the shut-in type of character and the dynamic factor back of this character trait which may well be of more importance than the tubercle bacillus itself because primary, because offering a point of attack in prophylaxis, and because, unless dealt with, making a cure impossible. It has been in the past usual to explain such problems by heredity but this stamps the issue as final and irremedial and sterilizes effectually all therapeutic effort.

In addition to all these problems it is of course of practical importance to inquire into the methods employed of making actually existing disease or deformity fit into the needs of the individual for expression, how a disease may be made an asset rather than a liability. For example, a deformity is made an excuse for idleness and a shut-in type of behavior; a lost arm is an excuse for living on charity; a resemblance to a great man, even in his defects, is used to bolster up an excessive egotism. Disease and deformity are often utilized by the neurotic instead of being part and parcel of the whole picture of the neurosis.

These lines of research suggest that the question which should be asked of the disordered human machine is, What is the individual trying to do? This question recognizes that the organism is an integrated whole which has a numerous machinery at its command for bringing to pass its aims which are registered in the psyche as desires, wishes. It is in every way quite as appropriate to question the human organism in this way as it is to question a group of such organisms in that integration to which we give the name of nation. The people have a right to ask, for example, with what motives the several nations, the United States, England, France, Germany, come to the peace table. Just as the various representations, diplomatic moves, dexterities of

the several delegates to the peace conference can only be adequately understood if the national motives back of them are known, so the various disorders of function of the several organs of the individual can only be adequately and fully understood when they are appreciated as parts of the complex mosaic of the individual, as mechanisms which are directed to the larger ends of the individual as a whole.

Psychiatry, by its unremitting emphasis on the study of the personality make-up, first to explain disease and later as necessary to understand the symptoms of disease when it does develop, has, by finally pressing physiology into its service, effected a union which for the first time really begins to recognize the importance of considering the individual as a whole. Internal medicine has thought that it was considering the individual as a whole, as a biological unit, when it considered all of the organs and perhaps the most obvious of the personality traits. The study of the personality from the two opposite angles, the psychological and the physiological, has demonstrated the inadequacy of this assumption and indicated quite clearly that between these two lines of approach much more is comprised than heretofore suspected. Psychiatry is the first medical specialty which at all adequately approaches the problem of the whole individual. It will remain for sociology to appreciate what it has to gain by a study in this region of the individual-society relation. It has much to gain from psychiatry as psychiatry has from internal medicine and for the very best results there needs to be a practical cooperation of all. As psychology needs to be humanized so psychiatry needs to be socialized.

CHAPTER VII

THERAPEUTICS

Action—Objectification—Transference—Resymbolization

The individual and the environment, far from being mutually exclusive, can only be considered as the two elements of a dynamic relation, of a constant interplay of forces, in which their relative values are in a constant state of flux. Objectively this relationship is expressed in terms of adaptation; subjectively it is expressed in terms of happiness; in any case the organism is in action and can only be understood when so considered and the various aspects of the psyche have come to be defined from this point of view. For example Watson[1] speaks of behavior as "the integrated response of muscles and glands" and says that: "The behaviorist is interested in integrations and total activities of the individual."

Action then is the function of the living organism but where action follows stimulus instantly and without hesitation there is the type of action known as reflex, with which there is associated little or no consciousness or feeling. When, however, for any reason, there is a delay between the stimulus and the appropriate action then there appears the phenomenon of consciousness. It is as Harrison puts it,[2] "just in this interval, this space between perception and reaction, this momentary halt, that our mental life, our images, our ideas, our consciousness, and assuredly our religion and our art, is built up."

Ordinarily perception is thought of as giving information about the environment which may be used in subsequent action. From this point of view, however, it must fit into the larger concept of the acting organism. Instead, therefore, of acting in accord with perception those aspects of the environment are per-

[1] Watson, J. B., Psychology from the Standpoint of a Behaviorist. Philadelphia, J. B. Lippincott & Co.

[2] Harrison, Jane Ellen, Ancient Art and Ritual. New York, Henry Holt & Co.

ceived which are necessary to carry out contemplated actions. Perception is therefore the early stage of action. As Bergson puts it:[3] "Our perceptions give us the plan of our eventual action on things," or in another place:[4] "The objects which surround my body reflect its possible action upon them." Memory, even, comes in for a like treatment so beautifully and inimitably expressed by Bergson in his Creative Evolution when he refers to the cerebral mechanism as being arranged so as to drive back into the unconscious almost the whole of the past "and to admit beyond the threshold only that which can cast light on the present situation."

Bergson therefore puts it[5] that "the fundamental law of psychical life is the orientation of consciousness towards action" and in his summing up of the situation says:[6] "Consider perception, to begin with. The body, by the place which at each moment it occupies in the universe, indicates the parts and the aspects of matter on which we can hold: our perception, which exactly measures our virtual action on things, thus limits itself to the objects which actually influence our organs and prepare our movements. Now let us turn to memory. The function of the body is not to store up recollections, but simply to choose, in order to bring back to distinct consciousness, by the real efficacy thus conferred on it, the useful memory, that which may complete and illuminate the present situation with a view to ultimate action."

For Bergson then[7] matter becomes "the aggregate of images, and perception of matter these same images referred to the eventual action of one particular image, my body."

Perception, memory, are then only aspects of the body in action. Consciousness, that is self-consciousness, only arises when there is some delay in passing into action, when there is some obstacle, or in other words when there is some conflict.[8] The needs of the organism are not by any means always reduced

[3] Creative Evolution.
[4] Matter and Memory.
[5] Matter and Memory.
[6] Matter and Memory.
[7] Matter and Memory.
[8] For a discussion of the nature of consciousness see my Mechanisms of Character Formation.

to one. There are often conflicting needs and it is during the period of conflict when these needs are endeavoring, so to speak, to translate themselves into action, when they are contending for the final common pathway to gain adequate expression, that consciousness arises. Consciousness arises at moments of conflict and is the expression at the psychological level of conflict when the opposing forces are contending for the mastery of the individual as a whole. These contending factors are wishes in the sense of Holt,[9] who considers a wish as a "motor attitude," "a course of action which some mechanism of the body is set to carry out."

Just as consciousness arises at moments of conflict when there is some delay in translating desire into action which is appropriate to neutralize it, so does emotion arise under the same circumstances. In fact desire can only mean that effective action has not as yet taken place. Hunger can only exist so long as food is not partaken of, as soon as it is, as soon as action has taken place that is appropriate to the stimulation by the gastric contractions, hunger ceases to exist. Fear is of something that may happen; anger is a preparation to attack; love is a desire to possess the loved object. "Man never is but always to be blest." Emotions are reflections or reverberations of the set of the action systems.

In the course of evolution as the relation between organism and environment becomes very much more complex the delay between the autonomic craving and the action necessary to neutralize the craving, between wish and appropriate action, is more and more emphasized. For the first time desire does not translate itself automatically and reflexly into action but there appears instead several possible courses of action and with it the feeling of freedom to choose which one shall be followed.[10] Carpenter

[9] Holt, E. B., The Freudian Wish.

[10] In considering the individual as an integrated complex of action systems the hypothesis of G. H. Parker is interesting as set forth in his recent work, The Elementary Nervous System; namely, that in the course of evolution muscle tissue develops before nervous tissue. He finds this to be the fact in sponges which have a primitive type of muscle tissue unaccompanied by nervous elements. In other words they have effectors but no receptors or connectors. There is also found a sluggish form of transmission which may be the forerunner of nervous pathways of discharge. This primitive muscle tissue is the beginning and the most primitive constituent of the neuromuscular mechanism around which the other elements subsequently evolve.

in a recent book[11] while recognizing the necessity of the development, looks upon the change from the automatic, unconscious types of animal mind to the state of self-consciousness as the origin of all man's misery and suffering and looks forward to a time when he shall be so in harmony with nature that self-consciousness will slip away and leave him again in full freedom to live.

To return to perception. Perception is most acute when consciousness is most acute and is most in evidence in connection with entirely new situations; it sinks to a negligible quantity in association with automatic activities. Looked at from the point of view as giving "the plan of our eventual action on things" percention can be seen to be but the objectification of desires. If the individual is hungry he sees food, the rest of the environment passes by without notice unless it serves to facilitate or interfere with getting the food. It is the perception of the food which gives the plan of action on the environment. The longer action is delayed the more acute the perception and the accompanying state of consciousness so that it may be well said in the words of Hall:[12] "Epistemologically speaking, no one can know what he does not objectify."

Wishes, interests, therefore, in the sense of autonomic cravings, needs, come thus to be objectified. And the course of development could well be followed by noting the objects in which the individual becomes progressively interested. This is the mechanism of *objectification.*

This gives a form of idealism which does not deny objective reality, but which does realize that objects of reality can have no meaning for the individual until he perceives them, but as this perception is already a part of his action upon them it is because he has projected his attention, his interest upon them for the purpose of bringing about a better adjustment in relation to them, that they are perceived, and further, that perception is a process of objectification is seen when it is realized that what is perceived depends upon the particular motor set toward the object, in other words, what action is contemplated with reference to it.

[11] Carpenter, Edward: Pagan and Christian Creeds, Their Origin and Meaning. New York, Harcourt, Brace and Howe, 1920.

[12] Hall, G. Stanley: Jesus, the Christ, in the Light of Psychology.

This mechanism of objectification is important to understand because it is fundamental in the process of psychotherapy when it figures under the name of *transference*. Transference, or the transfer, as it is called, has been a subject much discussed of late in connection with that method of psychotherapy known as psychoanalysis. It is understood then to be the projection of the patient's affects upon the analyst, the physician, and is known as positive transfer when the affects are the love interests (creative), and negative transfer when the affects are antipathic (hate, destructive interests). The positive transfer means in general that the patient does not unburden himself, bare his soul, discover his intimate self to one who is indifferent to him. That he can only do this to one for whom he has regard, in whom he has confidence and for whom he has respect. Then again the variations in the quality of the transfer, its positive or negative quality, is further explained by the fact that the patient objectifies his loves and hates in the person of the physician and in the course of the analysis. As the different aspects of his personality are dealt with the patient reacts towards the physician as he had reacted in his past towards those persons in his milieu for whom he thus felt love and hate. The physician thus acts like a catalyser drawing forth the emotions of the patient and representing in his own person those persons who in the past had been the objects of those emotions.

These phenomena of the transfer, although exclusively discussed by the psychoanalytic school, are, however, by no means confined to the psychoanalytic situation. As a matter of fact they are the phenomena of all personal relationships; they are in evidence in all friendships—positive transfers—and in all enmities—negative transfers: and they are particularly important as effecting the relations of physician and patient. It is not only the psychoanalyst who has to deal with the transfer but every physician, the only difference is that the analyst is conscious of the transfer and sees in it something which can be effectively used to advance the cure, while other physicians are unconscious of its existence and either get in difficulties which they do not understand or else produce results which are inexplicable or attributed erroneously to some agency which had nothing to do with producing them.

This latter aspect of the transfer is of very great importance

in the field of therapeutics today, as it always has been in the past. Faith in the physician has always been recognized as a valuable adjuvant but to the wide ramifications of this faith and its results physicians as well as laymen have usually been quite blind. To realize that patients only consult the physician in whom they have confidence and that from such a source they meet suggestions half-way and accept encouragement in a spirit of cooperation, are commonplaces and only touch the surface of this important problem.

To begin with, transference is one aspect of the process of objectification, and objectification, as already described, is the projection of interest and a necessary process in development, and the nature of the objects upon which the interest is projected is an indication of the stage of development reached. For example the child projects its interest upon dolls, the youth upon sports, the young man upon his business or profession, the middle aged man of some leisure upon art and literature, the old man upon the past.

Now one of the important aspects of mental illness is that some of the interests of the patient tend to remain at a low level of development, that is, they tend to remain relatively infantile and these infantile interests are relatively self-centered, that is, selfish as compared with the more completely objectified interests of the adult. The transfer of interest upon the physician, therefore, helps the interests of the patients to release themselves from their selfish fixations and to become objectified. The physician is the bridge over which the patient's interests may pass from himself to the outer world of reality. It not only helps in this way but it helps further because the physician is the objectified symbol of the patient's desire for health and therefore is peculiarly capable of attracting the self-centered interest. More than that, health involves a getting away from infantile, selfish interests and so in seeking health the objectification tends to be lifted to a higher plane.

The physician not only symbolizes the patient's desire for health but he stands also as an objectification of the patient's father or rather of the father's image (imago) as it was originally formed in the mind of the child and has since become unconscious. The father of the infant was to all intents and purposes

a God, all-powerful, capable of bringing anything to pass. The child looked up to the father with complete faith in his ability to take care of it, to vanquish all its foes, to provide all its pleasures. The physician, therefore, symbolizing this original attitude of the child for the father, stirs the reverberations of that authority which the father once had and can so command the faith of the patient that his interests will be turned from lower to higher levels, the process of objectification will be progressive and away from infantile and selfish interests. In the psychoanalytic situation the physician becomes the repository, so to speak, of the affects of the patient and so represents each person in turn, as revived in the course of the analysis, who had an emotional interest for the patient. It is the power of love and authority or perhaps the authority of love.

In the mentally ill patient the fixation of the interests at selfish levels produces self-indulgences which give pleasure, then this pleasure tends to increase the selfish interests which are gratified by self-indulgence, and so a vicious circle is established which tends to constantly plunge the patient to developmentally lower and lower levels of pleasure seeking and rob him more and more of the capacity for effective dealing with reality. The patient who is constantly resorting to narcotics to escape from reality finds the experince so pleasant that it is frequently repeated with a progressive lessening of the thought of interfering objections from his better self. Some strong emotional appeal (love interest) is necessary to break the vicious circle and redirect the energies and interests in a new channel and thus make the energy again available for progress. The physician is able to do this because he stands as the symbol of love and authority, he is the symbol of the patient's ideal. It is because of this mechanism of cure that any method of treatment, no matter what form it takes, Perkin's tractors to laying on of hands, will cure somebody. The cure can only be understood when the personal element is taken into consideration. This element is also of great importance in estimating the results in general medical practice. First one and then another drug or operation is credited with excellent results but practically never are the psychological factors involved given due consideration. Only when they are will an adequate estimate of the effectiveness of therapeutic agents be possible.

Another aspect of the physician as symbol which is implied in what has already been said is that as ideal he attracts the interests and tendencies of the patient to expression at a higher level and therefore helps to detach them from these lower levels of fixation which, after all, is the reason for the illness. In the vicious circle of alcoholism, for example, the analysis shows the patient how he is misusing his energies and how he can better employ them. The authority of the physician (transfer) enables him to make the start. The important reason for making explicit this particular aspect of the situation is that it involves a very important element in the treatment. Just as the most important characteristic for the parent to possess is a real love for the child, irrespective of any intellectual orientation towards the problem of the parent-child relation, so the most important single characteristic for the physician to possess is a sincere desire to help the patient. In other words, the character of the physician is perhaps of more importance than his skill in the details of technique. While this statement may be subject to many qualifications in general it is at least a safe principle to proceed upon. The continuous presence of a good example to follow in the personality of the physician is a constant stimulus to progress. For this reason the physician should not be too intimate with the patient for fear of impairing the ideal which can hardly ever stand too close examination.

The reason for the above statement is the existence of those very possibilities for apprehending the real motives of others already referred to in the discussion of language. The unconscious is keenly alive to the real motives of others and constitutes a great background of information which furnishes those subtle instructions that makes one feel instinctively at harmony or in opposition to others as their friendly or hostile motives are unconsciously sensed. The unconscious, as it were, has myriad feelers reaching in all directions into the surrounding personal environment and furnishing most valuable information for guidance. There recently appeared a play on the movie screen which disclosed only the feet and lower part of the legs of the actors. The play lasted about twenty minutes, the actors were numerous, and the situations many, but at no time was there the slightest doubt as to just what was going on. If the feet can furnish so

much information the entire body is surely as informing. Therefore the possession of a carefully intellectualized technique by the analyst is not enough, he must be an essentially constructive person with a sincere desire to help, possessed of that quality of sympathy which is never led astray by the unessential but always insisting upon the best of which the patient is capable.

To this background of feeling which forms the principal means of contacting with the personal environment and which, as the unconscious, forms the great mass of the common possession of all, the upper consciousness is highly sensitive and keenly responds in all its changes which are expressed on this level in symbolic form. The psychological level is the level of the symbol, which at once reflects the integrations below and, serving as their final expression, also serves to explain them. Therefore at all times the tendencies of the individual are expressed at the symbolic level and as their tendencies vary so do the symbols which express them vary. This variation of symbol which expresses the individual at the psychological level is the process of *resymbolization.*

This process of resymbolization furnishes the outer evidence, at the psychological level, of the various changes in the total reaction formula of the individual. The symbol indicates the conclusion, so to speak, which has been reached as a result of the conflict of opposing tendencies. A repressive conclusion produces a symbol in which the repressive tendency can be traced, a creative and progressive conclusion will shadow forth corresponding qualities in the symbol; a failure to reach a conclusion because the conflicting tendencies are of equal force will produce a symbol which can be translated as meaning doubt; various defensive tendencies, compromises, projections, rationalizations, are symbolically expressed. For example, the productions of dementia precox show frequently and characteristically symbols of regression; the delusions of the paranoiac are compensatory; those of the prison psychosis frequently of a defensive character.

The process of resymbolization is nothing more than the process of clothing thought in symbols; as the thought changes so do the symbols change.

Bertschinger[13] has called attention to the part this process

[13] Bertschinger, H., Processes of Recovery in Schizophrenia. The Psychoanalytic Review, Vol. III, No. 2, April, 1916.

plays in the getting well of certain schizophrenics. He has described three ways of getting well; namely, by correction of the delusions, by evasion of the complex, and by resymbolization of wishes which are inacceptable to the consciousness but nevertheless can not be denied expression. By resymbolization in the form of the delusions they both gain a certain acceptance and a degree of expression. The delusion of persecution, mechanism of projection, is the best recognized example. The conversion of psychical into bodily symptoms as seen in hysteria can be similarly explained. In fact the whole range of delusional experiences are but resymbolizations made in response to the demand that a certain degree of social value should attach to the symbol.

The way in which this process works in bringing about recovery is well illustrated by the story told by Clark of the Japanese woman who lost all her sons in the war. The loss was too much to adjust to all at once so she kept on setting their places at the table just as if nothing had happened. Then she dropped out one place, then after a while another, and then another, until finally they were all gone and so by diluting the affect was able to make an adjustment to it.

This mechanism was, too, shown by a patient who had been guilty of a deliquency in her early childhood which had been the cause of her neurosis. She had for years tried to bring herself to confess her sin to her brother but while she was still trying to make up her mind to do this her brother died. In telling the story she identified the physician as her brother, that is, she resymbolized her brother and thus by confessing to him she accomplished what she had been trying to do for so many years and was cured.

This resymbolization is a process familiar in every day thought. The politician who will not accept a bribe will take five thousand dollars he finds in his coat pocket. He convinces himself that he does not know who put it there and so can not return it. Why should he not use it? Many of the present day facts of psychology have always been known by the poet and artist but it was necessary to clothe them in their present symbolic form, to resymbolize them, before they were recognized by the scientist.

Resymbolization of social and legal concepts is constantly taking place and in general the resymbolization is indicative of the various stages reached in the advance of the social consciousness although, of course, from time to time the reverse process is in evidence. In this process of resymbolization selfishness becomes altruism, charity becomes benevolence, duty becomes a privilege in the forward progress of human ideals. The contrary factors of the conflict unite in a synthesis at a higher level and are expressed by a different symbol. Language gives these symbols concrete form and at once the mould of language begins to be stretched as the symbol expands in meaning until finally it is no longer able to stretch further and a new symbol arises to express the new meaning. The constant effort to express thought clearly in words helps in the very effort to clarify the thinking and frequently results in the formulation of new terms. Each new thought movement, therefore, tends to develop its own peculiar set of language symbols to suit its own particular purposes.

CHAPTER VIII

The Social Problem

Elevation—Rationalization—Sublimation—The Socialization of Strivings

The process of progressive resymbolization described in the last chapter is the outward evidence of *sublimation* which is the process of the continued refinement of the conflict as its successive solutions are carried to higher and higher levels of adjustment. Resymbolization and sublimation thus stand in the service of constant readjustment to progressively higher levels and thus in the service of cultural advance. Every adjustment to a higher level, however, is not sublimation. The energy of a repressed desire is often transferred to a higher method of expression which, however, is not a sublimation but only an *elevation,* to use the term proposed by Pfister.[1]

In sublimation the succeeding higher ways of expression are each in turn satisfactory. The child that begins by making mud pies, then takes to clay modelling and drawing, studies architecture and engineering, becomes a builder and an architect has found full expression all along the line which led him straight in the path to an ever increasing efficiency in the expression of ever higher creative ideals. This is the true process of sublimation.

The history of the individual with a repression, however, is quite different. Take for example the young woman who, disappointed in her love life, has had to renounce and repress her creative sexuality. The higher levels of expression, in such a case, are cut off from utilization. Because, however, she can not fully express herself it does not mean that her cravings in this respect are stilled and become non-existent. Quite the contrary, they are as strong as ever but they must now find some other, some aberrant way to gain expression. They find a way by a process analo-

[1] Pfister, Oskar, The Psychoanalytic Method. Moffat, Yard & Company, New York, 1917.

gous to short circuiting. They drain off at other levels of activity, but in a symbolically disguised form. Because their way to higher levels is blocked, and because their activity at lower levels is inacceptable to the individual, they can only gain their expression under the guise of being something else than they really are. Such a young woman may easily become a prude thus reacting by the opposite tendency against her sexuality. In the rôle of a prude she finds herself called upon to be a bitter critic of all forms of sexual freedom or display even in their most innocent and often useful forms, she constantly harps upon such subjects as modesty, and takes soundly to task all her friends and associates for being offenders. She is shocked by the nude in art, by the tendencies of the modern drama, by the new dances, and by a host of other tendencies which she sees about her and which all testify to, as she thinks, the degeneration of modern society.

All of these reactions of the prude are reactions at a higher level than her repressed cravings would take if unhampered by her intrapsychic censorship so long as the higher means of expression remain closed. Her reactions, therefore, are not sublimations but elevations.

See how subtly this works, for while she is obviously arrayed with all her forces against the various forms of manifest sexuality of which she is the self constituted critic still the very fact of the constant tendency within her which makes her never lose a chance to criticize has made her eagle eyed for sexuality so that she is able to see it even when it does not exist. She has therefore created a rôle for herself which permits her to occupy herself constantly with the hated subject. In fact her prudery is but a disguise in which she may safely occupy herself continuously with sexuality but in the form of a censor instead of a votary. She has, in a subtle and clever way, succeeded in gaining expression for her interests in a way which successfully disguises her real intent, not only to others, but more important still, to herself. This is the mechanism at the basis of hypocrisy and while it has its uses it is a long way from that all round satisfying type of expression which evidences a well rounded character make-up. It is a neurotic device, and one so common that it is of extreme importance to understand for evaluating many

forms of activity, particularly as seen in certain types of social reformers.

It is obvious that the ambivalent opposite of the prude, the type of reaction which would follow if there were no repression and consequent elevation, would be a yielding to the cravings, which, being denied their outlet above, would find expression at lower levels. Such expressions, which it can be seen must be of a relatively infantile character, although as heretofore explained their infantile character is masked because of the adult setting, might take the form of an open, unabashed interest in obscenity and vulgarity, a frank yielding to such interests rather than an over correction of them by suppression and elevation.

In either case, the prude or the decadent, if an explanation were sought for the conduct it would at once be forthcoming. The explanation would be full and logical somewhat in proportion to the intellectual resources of the individual but there would be an explanation. As in the case of the symbolic disguise, however, the explanation is meant for home consumption mainly, it is an explanation after the fact so to speak. Some one has said that reason is for the purpose of explaining what we do and so it it is in this case. One does what one wants to do and then proceeds to find a good reason for having done so. This is the process of *rationalization* which, although not by any means always or often obviously, yet frequently, if not always, is a process of *justification.* This process is the intellectual reverberation of repression and elevation and serves to assist further in the process of distortion and disguise. In sublimation the various integrations follow along the line of the expanding personality and afford satisfactory expression for its cravings at successively higher levels. The intellectual reverberations are free from indirections and never the servants of a repressed and pent up affect. A laboratory scientist, as a result of his experimentations, can calmly and judicially discuss the effects of alcohol on the human organism; an individual whose whole fortune is invested in its manufacture and sale can hardly be expected to. This is the basis of *prejudice* and forms a very fertile soil for the growth of rationalizations. The scientist, in this illustration, gives his reasons which he backs up by the facts brought out by his experiments: the other tends to make his arguments stick by the force

of their utterance and deals in glittering generalities of statement which again he backs up by emphatic pronouncements and appeals to feeling rather than to facts, as if a statement could be made true by mere force of utterance. This is the infantile appeal to magic which once produced results. At one time in his life by merely making enough noise when he was hungry the food was forthcoming. The method once so useful is resorted to when the higher levels of discharge, that is good reasons, are not available. It is one of those reactions which testify to a lingering conviction of the all-powerfulness of thought, to the continued existence of a Jehovah complex, a feeling of omnipotence which is relinquished with such difficulty because it is so satisfying and its relinquishment involves such painful realizations and renunciations.

Sublimation is the name given to the results of continuous successful solutions of conflicts along the lines of the most effective unfolding of the personality. Its ambivalent opposite is regression and its more or less successful imitator is elevation. The successfully sublimated, well rounded personality would be neither a prude nor a decadent but would accept sexuality in a simple and unprejudiced way and be able to see it in the general scheme of things as a great force for good, as a power second to none through which the higher aspirational strivings could find expression. In as much as in the progress of evolution and development there are no hiatuses but a gradual unfolding, whether it be conceived as taking place by a sense of infinitesimal changes or by saltatory mutations, there can be no great breach between man and the lower animals on the one hand or man and society on the other. Society is but the expression of a higher series of integrations and, as already pointed out, psychological defects of adjustment can only be adequately understood when they are considered as reactions of man as a social animal. Sublimation therefore is in line with civilization for as man advances on the path of successively higher integrations his problems come more and more to involve his relations with his fellows. Relations which themselves are on the way to ever greater complexities as the lower integrations are successfully negotiated. Sublimation comes therefore to mean more and more a socialization of man's cravings, desires, wishes, and represents

man's answer to the problem of adjustment, the problem of attempting his ideals. Regression, on the other hand, which is the opposite of sublimation, is a movement away from socialization. It calls forth reactions which are relatively infantile but occurring in an adult setting are seen to belong to a type of reaction which should have been left behind on the path of development, as, therefore having either no social value or being positively socially harmful and are therefore stamped with the disapproval of society. As a foreign body taken into the animal economy is expelled by vomiting, purging, or by the more involved method of inflammation and abscess formation, so by analogy the anti-social or asocial individual is similarly extruded by the more violent methods as applied to the criminal classes or by the milder methods as applied to the so-called insane, methods which can only be improved upon as a result of a wider knowledge of these classes and what they mean and by a further realization that much of the energy side-tracked by them and given over to destructive activities is salvable for purposes of social value.[2] In fact rare and highly valuable personalities are not infrequently caught up in an emotional jam which can be relieved and when relieved will release energies of rarest worth. All of the mechanisms discussed in this chapter; namely, sublimation, elevation, rationalization, are expressions of an effort toward *socialization*, the integration of man into an organism of a higher order—society.

[2] For a discussing of these classes see my Principles of Mental Hygiene. The Macmillan Company, New York, 1917.

CHAPTER IX

Conclusion

The development of the scientific principles underlying that department of the practice of medicine that deals with mental diseases—psychiatry—has led to a new and a more comprehensive concept of the human animal which is of the utmost importance not only to psychiatry but to medicine in general and also to the consideration of man as a social animal—to sociology. Just as the biologist has concluded that "species are essentially nothing else than stages of evolution interrupted at definite points in the developmental path,"[1] so it is equally correct to interpret the individual as a concrete locus where for the time being the life forces are nucleated and to realize that for his adequate understanding such a concept, that no longer considers him as an entity but as related in a dynamic way to the forces of nature in general and the life forces in particular, is necessary. From this point of view the individual becomes a problem in energetics and his successes, failures, and compromises indications of the way in which he has been able to utilize the life forces.

From this more comprehensive approach it is no longer enough that the individual should be studied by a method that is predominantly analytical, that considers his separate parts, his organs, as such and attempts to define their functions and diseases out of relation with the whole vast problem of the part he is playing in the larger scheme of things. A pragmatically teleological attitude is necessary that attempts to understand what the organism is striving to bring to pass in order to adequately evaluate the forces and the tendencies found operating. The human organism is striving for a different goal from a horse, a fish, or an invertebrate and each individual has a goal slightly different from his fellows. Only when the goal is known can there be a

[1] Eimer, Th., On Orthogenesis and the Impotence of Natural Selection in Species-Formation. The Open-Court Publishing Company, Chicago, 1898.

full appreciation of the part each organ is playing in the attempt to reach it.

In this broad concept of living beings the play of forces can be seen to follow laws already familiar in other departments of learning but obscured in the field of the psyche because clothed in different symbols which are not calculated to emphasize their similarity. Ideas and emotions are only beginning to be thought of as subject to laws in any way analogous to the laws that govern the distribution of energy as they have been worked out in the realm of physics. However this may be it soon becomes evident in tracing the strivings of the organism and the nature of the obstacles it has to overcome to effect its purposes that it behaves in every way as if subject to such laws although, in this region, they are not as yet subject to quantitative measurement.

In the previous chapters the phenomena of the striving organism have been traced as it fought its way along the evolutional pathway and the manifestations of those strivings have been indicated as they occurred at what have been termed, solely of course for pragmatic purposes, its different levels. It goes without saying that in a dynamic concept of the organism such as has been built up in this book no levels, as such, could possibly have a concrete, definite existence. They are only conceived of as series of phenomena that partake preponderantly of particular characteristics and are used in order to more readily deal with the facts. Like words they are crystallizations where no crystallization exists, or like the separate pictures of a cinematographic film they are fixed representations of what in reality are moving elements of a constantly changing series but brought into existence because of the necessities imposed by the method of handling facts.

In this moving equilibrium the important forces that are concerned as they operate to produce certain effects and are met by resistances, antagonistic forces operating in opposition, have been traced by their manifestations, and the broad analogies between actions and reactions as they occur at the different levels have been pointed out. From this point of view the organism is conceived of as being the host of innumerable forces which tend to produce each its respective results and the sum total of all of them acting and reacting upon one another gives the picture of

the dynamic organism working out its destiny as conditioned by their final pattern.

And finally, for the purpose of psychiatry, the final patterns of all of these strivings find their expression in reverberations, symbolic correlates, at the psychological level and the symbol expresses in an over-determined and tremendously condensed form what is going on in terms of the tendencies of the organism as a whole, as a unity.

In tracing the evolution of these symbolic correlates they are found to express a well defined tendency to the gradually increasing control of intelligence over the more purely affective qualities of the psyche, a gradually increasing field of conscious awareness and an increasing capacity for logical reasoning and volitional regulation. Thinking by means of crude analogies is replaced by logical reasoning and the roots of the sciences in magic finally produce the flower of the modern scientific disciplines with their elaborate experimental verifications.

When man arrives upon the scene he comes to his problems with the heritage of millions of years of organic evolution, millions of years of struggling with problems of adjustment, and with the solutions which have been reached during all these long ages laid down in his structure. Structures are but the precipitates of functions. To the extent that these structures represent effective solutions of these problems, such problems as nutrition as solved by the gastro-intestinal system, the problem of the utilization of oxygen as solved by the respiratory system, the structures and functions concerned are relatively stable and little likely to be severely disturbed by anything less than unusual and extraordinary forces. But at the psychological level matters are different. Here the structures, mental mechanisms, are relatively young and so less stable; the problems which have to be met are more complex and less uniform in character so that inadequacies are more frequently developed. The chances that the organism will develop defects of adjustment are, other things equal, much greater at the psychological or psycho-sociological level than they are at the physiological level. Even when there are defects of structure and function, that is at the anatomical and physiological levels, the inadequacies that are developed are often, at least, to be attributed to the demands that are made upon the organism from

above, the psycho-social demands, rather than to the actual defects themselves which, in such cases, are often not so great but that the organs could function well enough at a level of lessened requirements. It is the everlasting striving upward, the push of that vital urge which drives all living things to their utmost that stresses the machine to its limits and develops its inadequacies. The medicine of the future must learn to read the signs at the symbolic—psychological—level more accurately, to learn from them the nature, the quality, and the strength of those strivings at the only level where, from present knowledge at least, they manifest themselves, so as to learn what the problem is with which the individual is confronted and so learn how to assist more intelligently with its solution. To be able to do this will require the broadest, the most profound understanding of man, not only structurally and functionally but also in terms of his past. "Let no one think he has shaken off the past: We are in and of it, if we are also of ourselves. Our thoughts and the images in which we clothe them, what ancestry they trail out of a dim and ever lengthening distance, back through Rome to Greece, and through Greece backward still and eastward to the valleys of the Nile and the Euphrates. And there the receding trail only begins, for further back it passes, not ceasing, only to our blindness vanishing in a remote and semihuman past. It is well to recognize the pit from which we have been digged."[2] It is with the heritage from this past that he has to meet the problems that arise from "the human need for adjustment between the instincts and faculties of human nature and the powers conceivably controlling its accomplishment and destiny."[3]

With this heritage from the past of structures and functions, of instincts and traditions each man is called upon to face problems of adjustment both from within and from without which in their main general features are fundamentally alike for all but which on the other hand are, in their individual ramifications, different for each one. The degree of his success or his failure is a function of the whole complex of the interplay of all the factors concerned. In any case, no matter how great his success

[2] Taylor, H. O.: Prophets, Poets, and Philosophers of the Ancient World. The Macmillan Co., New York, 1919.

[3] Taylor, op. cit.

may be at first, each solution reached brings a host of new problems in its wake and ultimately everyone finally comes to a point where no further progress is possible and failure begins. Life ultimately issues in death but death only that life may begin again and begin at a point a little further on so that the solutions of succeeding generations may reach a little further forward on the path of progress. On the way which leads to the death of the individual minor deaths and rejuvenations are occurring to complicate the picture. Organs are discarded, goals have to be abandoned, failures have to be accepted, desires must be renounced and often out of renunciation comes a better adjustment, a new and clearer vision. So life and death go hand in hand in the individual as they do in the race and out of each the other grows, but another aspect of the great becoming.

The practice of psychiatry concerns itself with these partial death tendencies as they manifest themselves at the symbolic level. The neurosis or psychosis is an expression of the blocking of the instinctive tendencies of the individual because they cannot become assimilated to his conscious purposes and the energy they contain be utilized in forward living activities. The drive of these tendencies remains an emotional one which, striving to gain expression, meets with stabilized ways of traditional thinking to which it is inacceptable. In their effort to gain conscious expression they are forced to a seeming conformity with conventional ways of thinking and so in their real nature remain obscure and unintelligible to their host.

In the progress of cultural development repression is utilized to drive the expression of these tendencies from conscious awareness and keep them in the realm of the unconscious and this mechanism remains effective so long as the strength of the individual is sufficient. But if for any reason such as an undue infantile fixation the pleasure premium attached to these instinctive strivings is unduly strong, or the obstacles to their sublimated expression unduly great, or the power of resistance to their demands is weakened by illness, fatigue, or mental or physical pain and suffering they gain the ascendant, outward conformity to traditional and conventional ways of thinking becomes impossible. The balance has been destroyed and mental illness is the result.

The goal of psychotherapeutics as well as that of further cultural development is to make possible greater knowledge, to enable the individual to see through and around his emotional ways of thinking and therefore, instead of attempting to blind himself to his affective needs being willing to examine them as containing possible reservoirs of energy which can be made practically available in satisfactory ways. Conscious, rational and voluntary control is sought as a substitute for blind affective ways of reaction. To effect this change the physician as teacher temporarily reproduces the parent-child relationship with his patient in all those aspects that spell confidence, respect, affectionate regard, absolute trust, and through the power of such an affective relationship he is able to direct the thought of his patient into those channels that assist him to emancipate himself from childlike ways of thinking and feeling and towards the conscious and voluntary assumption of adult responsibilities.

In the effort to effect this result it is necessary to examine with great care and in minute detail the mental content of the patient in order to help him to come to an understanding of the nature and quality of his strivings as well as the character of the obstacles to their fulfillment as expressed in the psychological symbolism. The physician also must needs devote some attention to the quality of the somatic machinery with which the patient has to operate in order to gain the fullest understanding of his assets and liabilities and all of the ways in which he may render assistance. The practice of psychiatry from this point of view demands the broadest possible survey of the patient's bodily and mental equipment and as such is as yet only in its infancy. In this sense psychiatry bids fair to become the great unifying medical specialty which emphasizes the necessity for a consideration of the organism as a whole in the most comprehensive meaning of such a concept, recognizing and giving proper weight to its heritage from the past on the one hand and appreciating, on the other hand, the nature of its strivings to become integrated with its fellows in the super-organism, society. It is only by tracing the mechanisms of adjustment free from the limitations to thought which are set by pragmatically developed but artificial distinctions involved in classifications of knowledge, such as those between the individual and the phylum, be-

tween body and mind, between individual man and society, it is only by being able in thinking to transcend such limitations that the dynamic concept of struggling aspiring man as set forth in this book is made possible and therefore that the conclusions which flow from such a concept can be brought to bear upon the problems of psychiatry.

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